# TEAC®

# A-1250
# A-2500

STEREO TAPE DECK

## SERVICE MANUAL

**TEAC CORPORATION**

SALES OFFICE: SHINJUKU BUILDING
1-8-1, NISHI-SHINJUKU, SHINJUKU, TOKYO

U.S. DISTRIBUTOR: TEAC CORPORATION OF AMERICA
7733 TELEGRAPH ROAD
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MT2500E100

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# 1 GENERAL DESCRIPTION

The TEAC A-2500 is a high quality 2 speed, 4 track 2 channel tape deck employing the famous TEAC 3 motor tape transport.
3 heads (1 composite erase/record head) provide all the functions of a 4 head configuration.
The ultra wide band preamplifier circuits use all silicon transistors.
Independent circuits are provided for recording, monitoring, meter amplifier, and playback functions.
The A-2500 may be used with any good quality amplifier or high fidelity sound system.

This service manual is designed to assist service engineers by providing procedures and corrective measures for adjustment, care and maintenance, and the ordering procedures for needed parts.

If adjustments or repairs are too complicated and are difficult for you to correct, or if you have any technical questions, please contact the nearest TEAC dealer or TEAC Corporation or affiliated corporations.

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# 2 SERVICE DATA

## MECHANICAL

| | |
|---|---|
| Heads: | 4 track 2 channel stereophonic.<br>Erase/Record combination head;<br>Erase section,<br>1.8kohm/100kHz, erase current approx. 30mA<br><br>Record section,<br>100ohm/1kHz, bias current approx. 2mA<br><br>Playback,<br>3kohm/1kHz -53dB |
| Tape width: | Standard 1/4inch tape |
| Tape speed: | 3-3/4ips and 7-1/2ips(±0.5%) |
| Motors: | 4/8-pole dual speed hysteresis synchronous motor for capstan drive.<br><br>6-pole eddy current motors for reel drive. |
| Wow and Flutter: | 0.12% at 7-1/2ips.<br>0.15% at 3-3/4ips.<br><br>Wow and flutter measured according to weighted NAB standard using TEAC flutter free tape. |
| Fast Winding Time: | Approx. 100 second or less for 1,200 feet. |
| Operating Position: | Horizontal or vertical. |
| Power Requirements: | 100/117/200/220/240V AC (Model 1250, 117V 60Hz)<br><br>50/60Hz 140W |
| Weight: | 37.5lbs (17.3kg) |

## ELECTRICAL

| | |
|---|---|
| Transistors: | 2SC732(BL) x 2 2SA494(Y) x 2<br>2SC733(Y) x 2 2SC369(BL) x 6<br>2SC372(Y) x 10 2SC971 x 2 |
| Diodes: | FR-1MD x 2<br>FR-2 10 x 1 |
| Frequency Response: | Overall from recording INPUT to playback OUTPUT.<br><br>7-1/2ips, ±2dB 50Hz - 10kHz<br>3-3/4ips, ±2dB 50Hz - 5kHz |
| Equalization: | NAB equalization<br>7-1/2ips 50u sec. 3-3/4ips 90u sec |
| Input: | MIC: 0.3mV/10kohm(-68dB)<br>LINE: 0.1V/100kohm(-18dB) |

| | |
|---|---|
| Output: | LINE: approx. 0.3V/10kohm or more<br>HEADPHONE: 0.3mW/8ohm |
| Bias Freq: | 100kHz push-pull oscillator |
| Signal to Noise Ratio: | 50dB or more<br>Peak record level to unweighted noise |
| Cross talk Rejection: | 40dB Channel to channel at 1kHz<br>35dB Adjacent track at 100Hz |
| Erase Efficiency: | 60dB or more at 7-1/2ips |

These specifications are indispensible information and are required to service the equipment properly. They may differ slightly from those printed in the advertising brochures or the operation manual.

**NOTE**

As a result of continuing changes and improvements during the production run, minor differences may be found between early and later machines refer to manual change sheets for information concerning modifications.

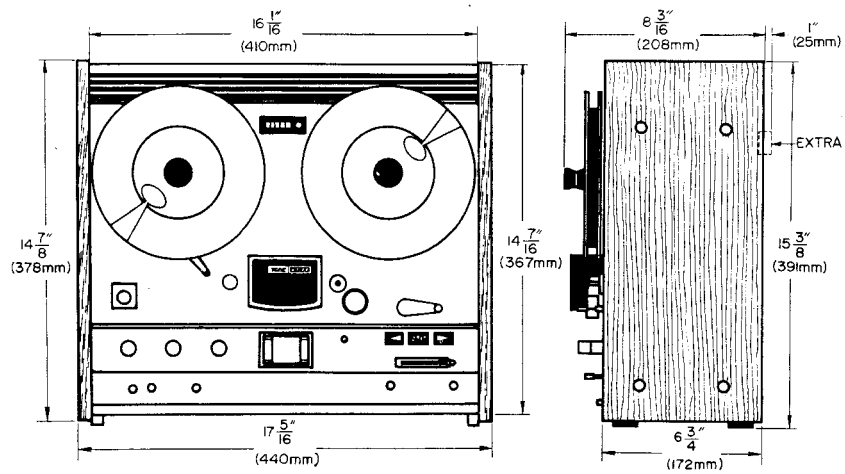



Fig. 2-1 Dimensions

# 4 EQUIPMENT REQUIRED

FOR MECHANICAL MEASUREMENT

| | |
|---|---|
| SPRING SCALE: | 0 - 3kg(0 - 8lbs)<br>0 - 300g(0 - 10oz) |
| TEST TAPE: | TEAC YTT-2003 (7-1/2ips)<br>TEAC YTT-2002 (3-3/4ips) |
| FLUTTER METER: | SENTINEL INC FL-3D-1 |
| DIGITAL FREQ. COUNTER: | Capable of 0 to 5kHz indication. |
| TOOLS: | General, 2mm nut driver, Hex head allen wrench |

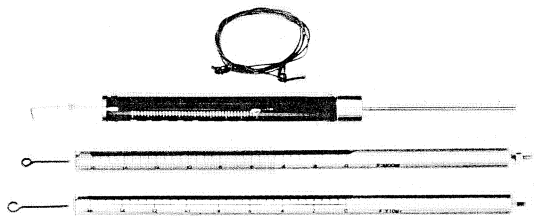


Fig. 4-1 Spring Scale

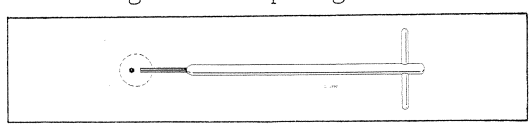


Fig. 4-2 TEAC Hex Allen Wrench

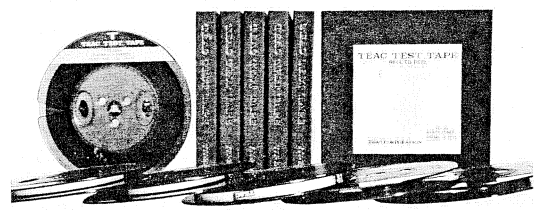


Fig. 4-3 TEAC Test Tapes

FOR ELECTRICAL MEASUREMENT

| | |
|---|---|
| TEST TAPE: | TEAC YTT-1003 for 7-1/2ips<br>TEAC YTT-1002 for 3-3/4ips<br>SCOTCH 203 and 150 for recording test. |
| EMPTY REEL: | TEAC RE-702(2" hub)<br>TEAC RE-701(4" hub) |
| TEST SET: | TEAC M-826A test set |

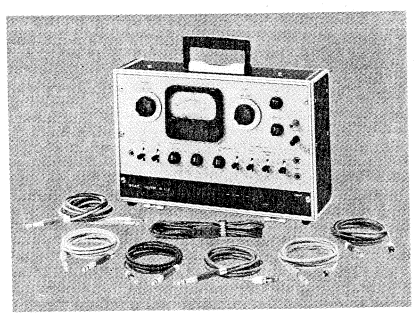


Fig. 4-4 TEAC Test Set

NOTE

Use of the TEAC M-826A test set is recommended. This set incorporates an AC VTVM, Audio Oscillator, Channel Selecting switch, Variable Attenuator, Monitor Speaker and Cables.

TEAC M-826A measures the RMS value of the Voltage(0dB=0.775V). Characteristics of this test set are similar to the standard VU-meter.

| | |
|---|---|
| BAND PASS FILTER: | TEAC M-206A(1kHz) |
| VTVM: | hp model 4302B or equivalent |
| RESISTOR: | Non inductive type 8ohm/1W |
| OSCILLOSCOPE: | General |

# 5 PARTIAL DISASSEMBLY

CAUTION

Do not attempt complete disassembly of any of the subassemblies.
The list of individually replaceable parts in the exploded view should be used as a guide to disassembly limits.

## REMOVING THE BOTTOM PLATE

- Place the unit upside down.
- Remove the three screws in the bottom plate.
- Lift off bottom plate.

NOTE

All amplifier checks and adjustment can be made from the bottom with the plate removed

CAUTION

These adjustments should be performed by experienced technicians, and then only when going through the complete test and check procedures on the unit which is being tested.

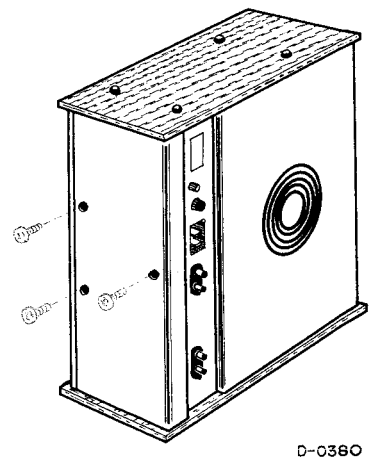



Fig. 5-1 Removing The Bottom Plate

## REMOVING THE REAR PANEL AND WOODEN SIDES

- Loosen the four screws on each wooden side.
- Remove the six screws holding the rear panel.
- Lift off rear panel.

- Remove the eight screws in the two wooden sides.
- Remove the wooden sides.

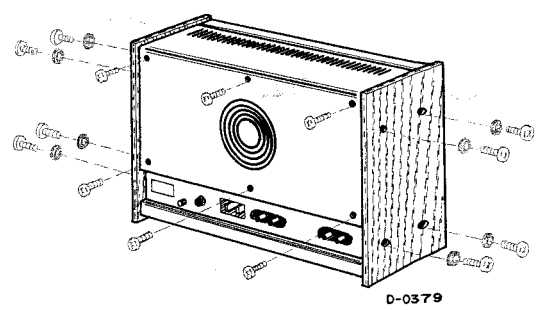



Fig. 5-2 Removing The Rear panel And Wooden Side

## HEAD REPLACEMENT

CAUTION

Power to the unit must be switched off when removing the heads, this to prevent transient pulses from passing through the heads causing strong magnetization or damage to the delicate windings. After head replacement, thorough demagnetization is recommended.

NOTE

The heads of the A-2500 can be changed either as a complete assembly or individually depending on the need.

### HEAD ASSEMBLY REPLACEMENT

To change the head assembly as a unit, remove the two mounting screws, (one on each end).
Note the positions of the wires on the circuit board before unsoldering.
Solder the wires of the new heads in exactly the same positions.

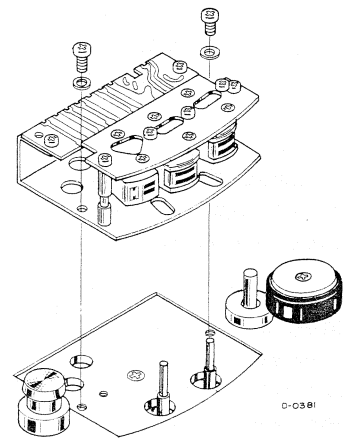
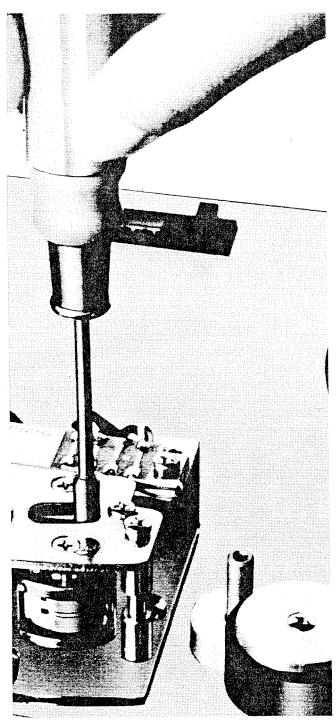



Fig. 5-3 Head Assy

### INDIVIDUAL HEAD REPLACEMENT



To replace a single head, a special 2mm nut driver is required. Remove the two nuts on the defective head through the access hole provided, this releases the head from the mounting plate. Note the position of the wires on the circuit board. Connect the new head in the same manner.
Replace the nuts securing the new head to the plate, perform head alignment before operation.
Head installation mounting provides for left or right positioning. After installing heads, determine proper position while recording or playing back a tape.

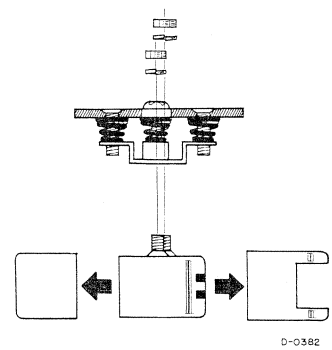



Fig. 5-4
Individual Heads

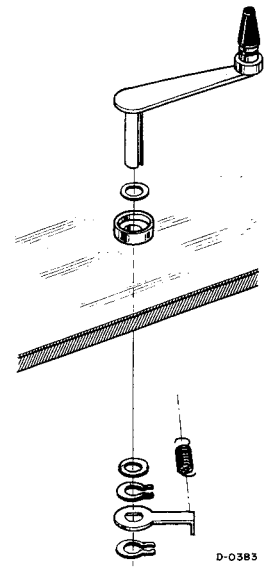
## TENSION ARM ASSY - LEFT -

- Remove the snap ring first.
- Disconnect one end of the spring B and remove the spring hang.
- Remove the upper snap ring and flat washer from the arm shaft.
- Pull off the tension arm assy with flat washer

To reassemble, reverse the previous procedures.

IMPORTANT

A special grease ( MULTI DIA SS-10 ) must be used between the shaft and busing to maintain proper tension arm damping when installing tension arm.

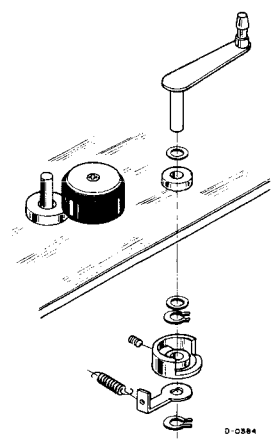



## TENSION ARM ASSY - RIGHT -

- Remove the snap ring.
- Disconnect spring C and remove the spring hang.
- Remove the snap ring ( upper ) and flat washer.
- Pull off the tension arm assy with flat washer.

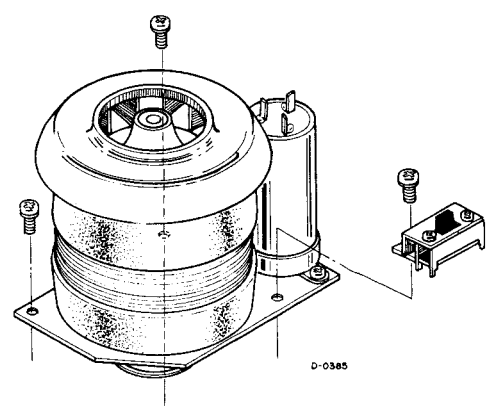
NOTE

Be sure that hex head screw is retight retightened when remounting tension arm.



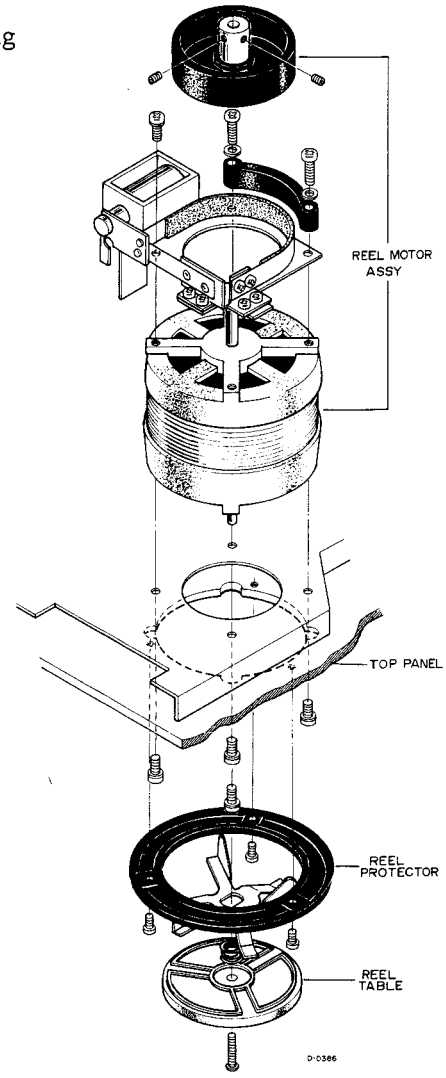

## CAPSTAN MOTOR ASSY

- To remove the capstan assy from the top panel remove three screw in each corner mounting plate.



## REEL MOTOR ASSY

- To remove the reel motor assy. the reel table assy and reel protector must be removed.
- Remove the four reel motor mounting screw at under top panel.



# 6 HEAD MECHANICAL ALIGNMENT

NOTE

Head alignment is adjusted at the factory to very critical tolerances. Normally HEAD ASSEMBLY replacement will require only minor alignments or adjustments.
Complete readjustment should only be necessary after an individual head is replaced.
The adjustments are made as follows:

ERASE HEAD SECTION

The erase head pole should be above the edge of a threaded tape by the width of heavy pencil line.

RECORD HEAD SECTION

The record head pole should be above the edge of a threaded tape by the width of a thin pencil line.

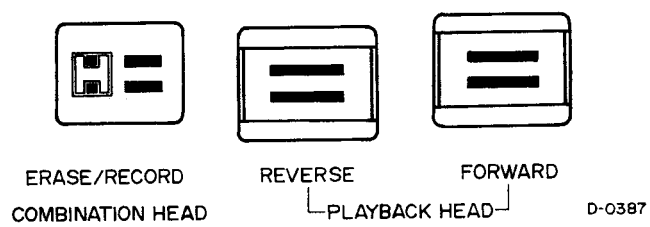



Fig. 6-1 Head Alignment

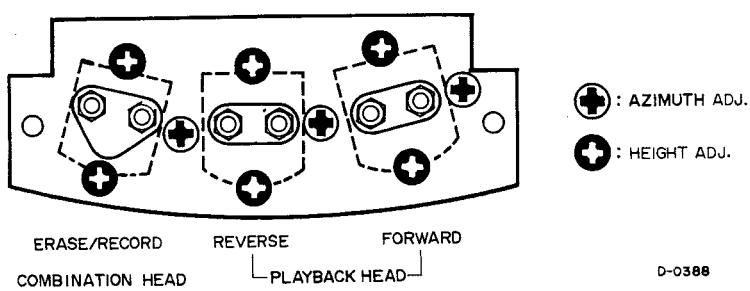



Fig. 6-2 Adjustable Screw

PLAYBACK HEAD -FORWARD-

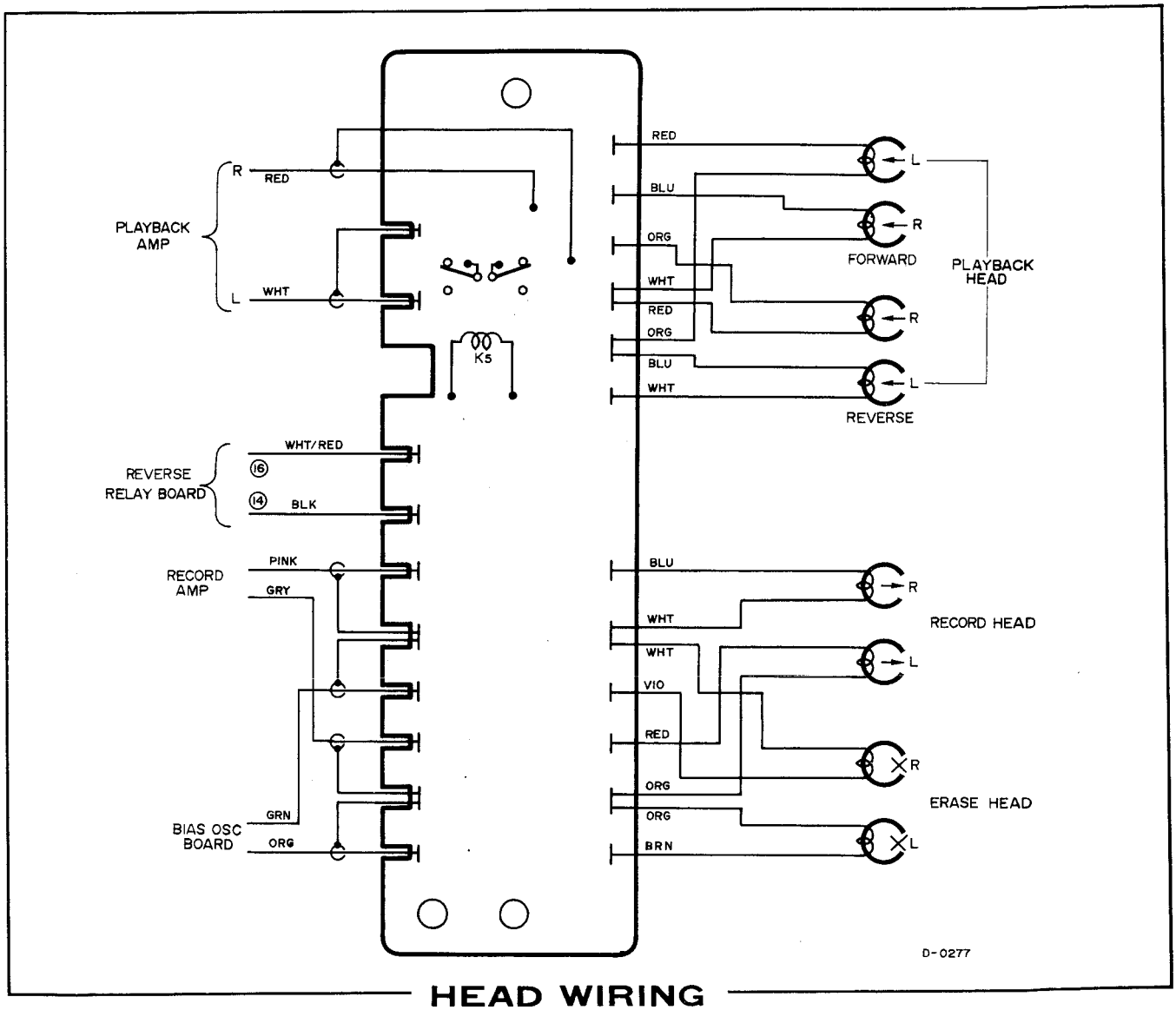
The pole of the playback head should be even with the top of a threaded tape.

PLAYBACK HEAD -REVERSE-

The pole of the playback head should be even with the bottom of a threaded tape.

NOTE

Azimuth adjustments are given in the section on MEASUREMENT AND ADJUSTMENT -ELECTRICAL-


PLAYBACK AMP
R
RED
L
WHT
K5
REVERSE RELAY BOARD
WHT/RED
16
14
BLK
RECORD AMP
PINK
GRY
BIAS OSC BOARD
GRN
ORG
RED
BLU
ORG
WHT
RED
ORG
BLU
WHT
BLU
WHT
WHT
VIO
RED
ORG
ORG
BRN
L
R
FORWARD
PLAYBACK HEAD
R
L
REVERSE
R
RECORD HEAD
L
R
ERASE HEAD
L
D-0277

**HEAD WIRING**

# 7 MEASUREMENT AND ADJUSTMENT
# -MECHANICAL-

NOTE

The TEAC A-2500 uses a highly reliable three motor drive system and should require a minimum of mechanical maintenance or adjustment.
These adjustments are made at factory. Readjustment should only be required after many hours of operation or component replacement.

## PINCH ROLLER PRESSURE

NOTE

Pinch roller pressure is supplied by pinch roller spring arm only and it is most important that the solenoid plunger be fully bottomed before taking pressure measurement.

1. Load tape or lock the shut-off arm in the on position.
2. Attach a suitable spring scale to the pinch roller shaft.
3. Place the unit in the( ▶ ) PLAY mode, and holding the spring scale as illustrated, slowly draw it away from the pinch roller.
4. Do not allow the string to rub against the pinch roller.
5. Note the reading on the spring scale at the instant the pinch roller stops rotating.
6. The scale should indicate 2.0 - 2.2kg (5.01bs - 5.61bs).
7. If adjustment is necessary, loosen the three screws on the capstan solenoid and position the solenoid for optimum pressure.
8. Adjust stopper position so that the gap between capstan shaft and pinch roller is approximately 7mm(9/32inch).

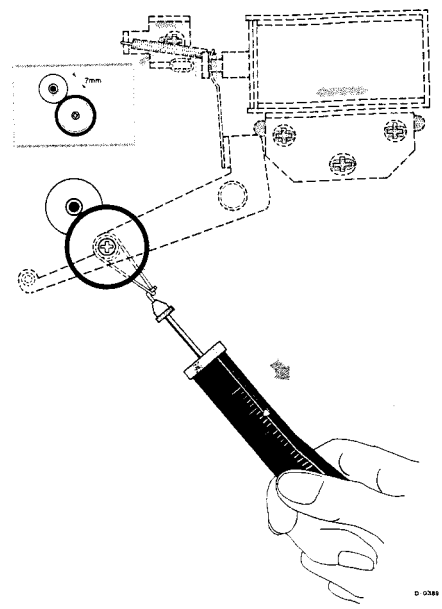


Fig. 7-1 Pressure Measurement -Pinch Roller-

## TORQUE ADJUSTMENT PROCEDURE

NOTE

Adjustable resistors for both reel motors are wired as shown in the figure. R-1 is common to both motors and R-2 is switched between motors. Perfect adjustment of one motors tension may result in the other motors tension exceeding allowable limits. In this case a compromise should be made.
Position R-1, R-2 for optimum torque of both motors.

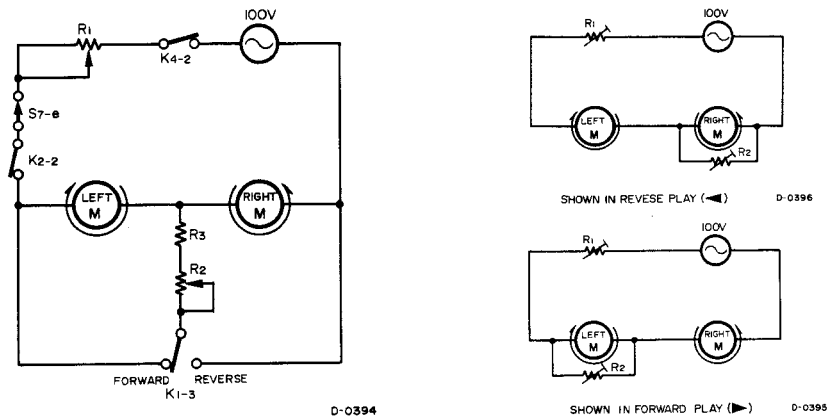



Fig. 7-2 Torque Operation

Perform following adjustments with unit in Forward Play.

1. Measure the back tension of the left reel motor and the take-up torque of the right reel motor.
2. Adjust R-1 (50 ohms) if measurement value of right or left reel motor exceeds the specified limits. (Coarse adjustment)
3. After adjusting R-1, adjust R-2 to bring back tension and takeup torque to exact specified limits.

NOTE

Adjustments will interact. Several adjustments may be required to bring both motors within specifications.

4. After adjusting R-1 and R-2 in forward play mode, switch to reverse mode and check back tension(Right) and torque(Left).
   Operation should be within specified limits. If not perform adjustment 1 - 3 again for reverse operation.
5. Recheck forward operation as in step 1 above. If forward operation can be satisfactorily adjusted but reverse operation cannot, a new motor may be required.

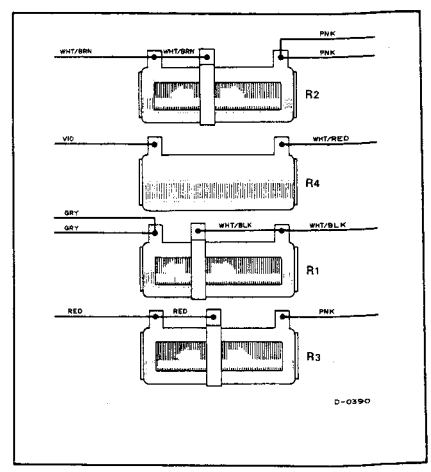



Fig. 7-3 Adjustable Location -Tension Resistors-

## TORQUE MEASUREMENT PROCEDURE

**IMPORTANT**

Be sure the full required line voltage is applied and that the unit is set to the proper line frequency.

BACK TENSION - Forward

1. Load tape or block the shut-off arm in the on position.
2. Place an empty 7" reel with a 2" diameter hub on left reel table.
3. Rotate the reel and wind several turns of string around the hub. Attach spring scale to string.
4. Place the unit in the ( ▶ ) play mode.
5. Pull the scale away from the reel against the motor torque, with a steady smooth motion.
6. Note the scale reading while it is in steady motion.
7. Make sure the string does not rub against the reel flanges.
8. The reading should be approximately 180 - 220g/cm(2.8 - 3.1oz-inch).

Reverse:

9. To check the reverse back tension, place the reel and spring scale on the right reel table(see figure) and repeat above procedure pressing( ◀ )play button.

TAKE-UP TORQUE - Forward

1. Place the empty reel and attached spring scale on the right reel table.
2. Place the unit in the ( ▶ ) play mode.
3. Allow the rotation of the reel to slowly draw the scale toward the hub.
4. Hold the spring scale with enough force to allow a steady reading.
5. It should be approximately 360 - 400g/cm(4.1 - 4.8oz-inch).

Reverse:

6. Place the empty reel and spring scale on the left reel table and select ( ◀ ) reverse play mode.
7. The measurement of reverse take-up torque is as above with the exception that rotations are clockwise.

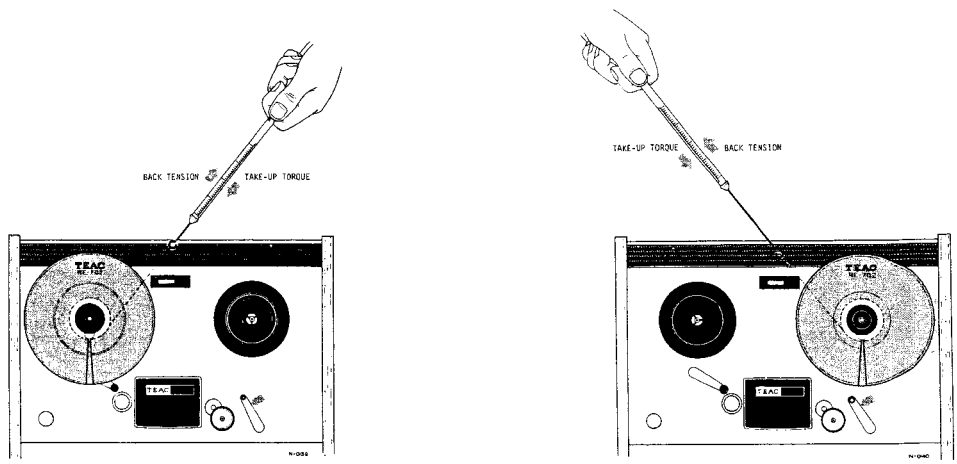
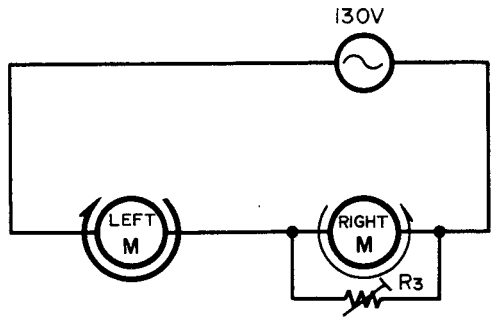



Fig. 7-4 Torque Measurement

## REWIND BACK TENSION

1. Load a full 1,800ft reel of tape on the right reel table.
2. Place the empty reel with 2" hub on the left reel table.
3. Place the unit in the fast rewind mode, ( ◀ ).
4. At this time observe the right tension arm. Adjust R3 so that the arm moves approx. 1" to the right and remains there.




SHOWN IN REWIND MODE D-0397

Fig. 7-5 Torque Operation

## BRAKE TORQUE

NOTE

The brake torque is actuated mechanically. Pressure is set by the variable spring force.
While making this measurement and adjustment, be carefull not to bend the brake bands.
The cleaning of the brake-drum or the brake-shoe is required only when necessary. Because the brake-torque may change by the cleaning. When necessary, use TEAC Cleaner TZ-251B. Never use other cleaning kit. After cleaning, make running enough, the check the brake-torque in the stable state.

1. Brake adjustments are made with no power applied to the unit.
2. Place an empty 4" hub reel on the left reel table, and fasten one end of a 30" length of string to the reel anchor.
3. Wind several turns of string counterclockwise around the hub and attach a suitable spring scale to the free end of the string.
4. Pull the spring scale away from the reel, making sure that the string does not rub the reel flanges.
5. Take a reading only when the reel is in steady motion since the force required to overcome static friction will produce a false, excessively high initial reading.
6. The reading should be 900 - 1,100g-cm(13 - 14oz-inch).
7. If adjustment is required, loosen the two screws shown and position the brake for optimum torque.
8. The adjustment of the right brake is the same, with the exception that rotations are clockwise.

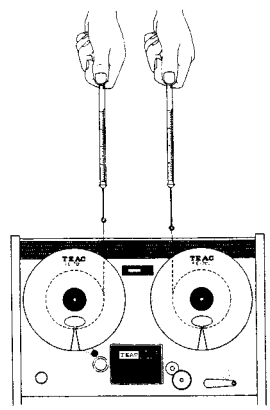


Fig. 7-6 Torque Measurement -Brake-

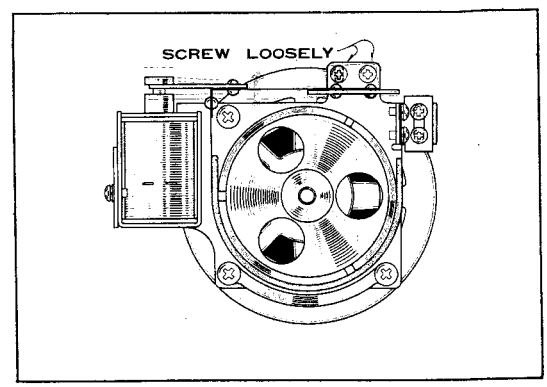



Fig. 7-7 Adjustable Location -Brake-

IMPORTANT

The difference in torques between the right and left brake should be kept within 50g-cm(0.7oz-inch).

## REEL HEIGHT ADJUSTMENT

Adjustment of reel height should be necessary only after a motor has been replaced.
The following procedure should be closely followed.

### Coarse Adjustment

NOTE

Coarse adjustment of reel height is accomplished by loosening the two hex head allen screws on the motor shaft collar. TEAC allen (hex head) wrench is required(order No. 50860210).

- Access to these screws is from the top of the unit.
- After loosening these screws slide the shaft to the desired height, using the motor mounting plate as a reference.
- Turn fine adjustment screw to full clockwise.

### Fine Adjustment

- If perfect alignment cannot be obtained in this manner, a vernier (fine) adjustment is provided.
- The screw in the outer end of the motor shaft can be used to correct up to approximately 0.004 inches.

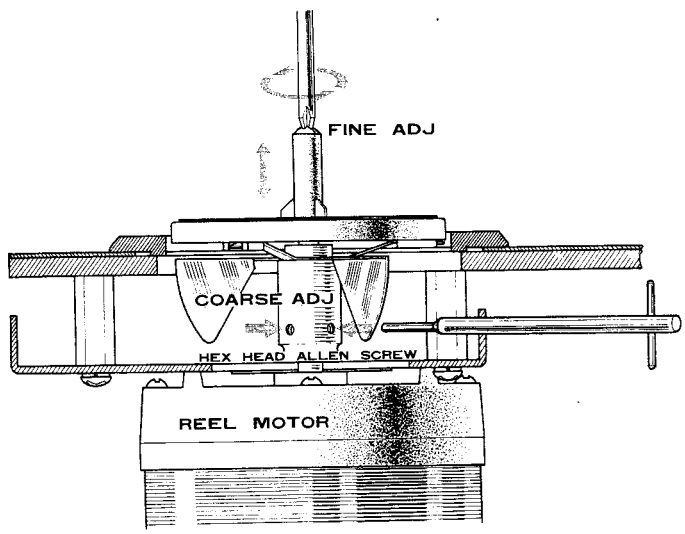



Fig. 7-8 Adjustment -Reel Table High-

## BRAKE TORQUE

NOTE

The brake torque is actuated mechanically. Pressure is set by the variable spring force.
While making this measurement and adjustment, be carefull not to bend the brake bands.
The cleaning of the brake-drum or the brake-shoe is required only when necessary. Because the brake-torque may change by the cleaning. When necessary, use TEAC Cleaner TZ-251B. Never use other cleaning kit. After cleaning, make running enough, the check the brake-torque in the stable state.

1. Brake adjustments are made with no power applied to the unit.
2. Place an empty 4" hub reel on the left reel table, and fasten one end of a 30" length of string to the reel anchor.
3. Wind several turns of string counterclockwise around the hub and attach a suitable spring scale to the free end of the string.
4. Pull the spring scale away from the reel, making sure that the string does not rub the reel flanges.
5. Take a reading only when the reel is in steady motion since the force required to overcome static friction will produce a false, excessively high initial reading.
6. The reading should be 900 - 1,100g-cm(13 - 14oz-inch).
7. If adjustment is required, loosen the two screws shown and position the brake for optimum torque.
8. The adjustment of the right brake is the same, with the exception that rotations are clockwise.

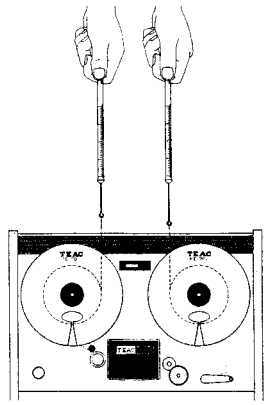


Fig. 7-6 Torque Measurement -Brake-

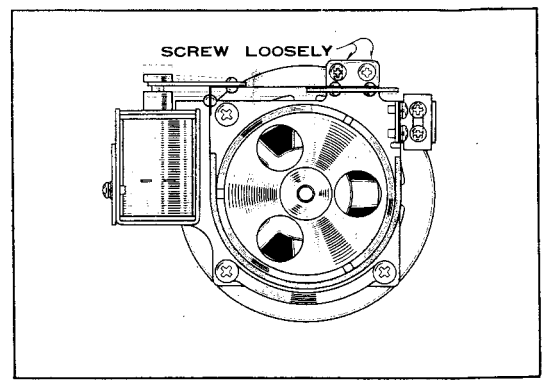



Fig. 7-7 Adjustable Location -Brake-

IMPORTANT

The difference in torques between the right and left brake should be kept within 50g-cm(0.7oz-inch).

## REEL HEIGHT ADJUSTMENT

Adjustment of reel height should be necessary only after a motor has been replaced.
The following procedure should be closely followed.

### Coarse Adjustment

NOTE

Coarse adjustment of reel height is accomplished by loosening the two hex head allen screws on the motor shaft collar. TEAC allen (hex head) wrench is required(order No. 50860210).

- Access to these screws is from the top of the unit.
- After loosening these screws slide the shaft to the desired height, using the motor mounting plate as a reference.
- Turn fine adjustment screw to full clockwise.

### Fine Adjustment

- If perfect alignment cannot be obtained in this manner, a vernier (fine) adjustment is provided.
- The screw in the outer end of the motor shaft can be used to correct up to approximately 0.004 inches.

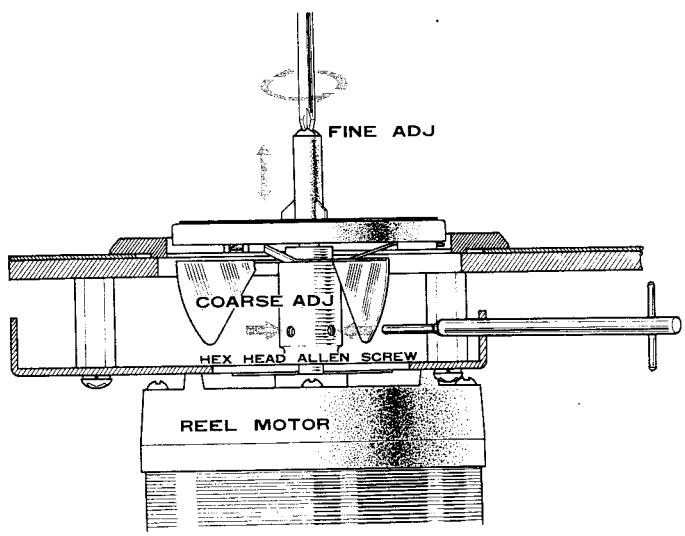



Fig. 7-8 Adjustment -Reel Table High-

## BRAKE TORQUE

NOTE

The brake torque is actuated mechanically. Pressure is set by the variable spring force.
While making this measurement and adjustment, be carefull not to bend the brake bands.
The cleaning of the brake-drum or the brake-shoe is required only when necessary. Because the brake-torque may change by the cleaning. When necessary, use TEAC Cleaner TZ-251B. Never use other cleaning kit. After cleaning, make running enough, the check the brake-torque in the stable state.

1. Brake adjustments are made with no power applied to the unit.
2. Place an empty 4" hub reel on the left reel table, and fasten one end of a 30" length of string to the reel anchor.
3. Wind several turns of string counterclockwise around the hub and attach a suitable spring scale to the free end of the string.
4. Pull the spring scale away from the reel, making sure that the string does not rub the reel flanges.
5. Take a reading only when the reel is in steady motion since the force required to overcome static friction will produce a false, excessively high initial reading.
6. The reading should be 900 - 1,100g-cm(13 - 14oz-inch).
7. If adjustment is required, loosen the two screws shown and position the brake for optimum torque.
8. The adjustment of the right brake is the same, with the exception that rotations are clockwise.

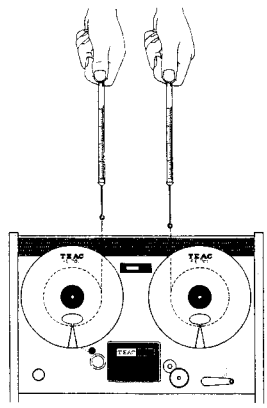


Fig. 7-6 Torque Measurement -Brake-

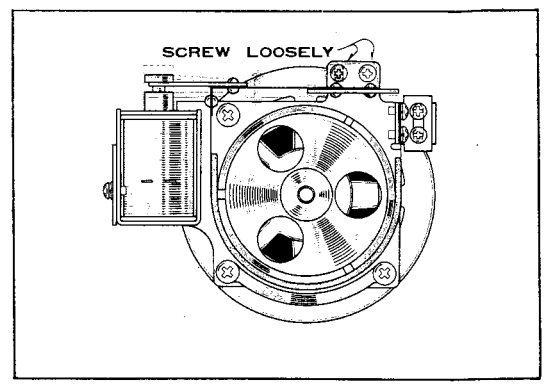



Fig. 7-7 Adjustable Location -Brake-

IMPORTANT

The difference in torques between the right and left brake should be kept within 50g-cm(0.7oz-inch).

## REEL HEIGHT ADJUSTMENT

Adjustment of reel height should be necessary only after a motor has been replaced.
The following procedure should be closely followed.

### Coarse Adjustment

NOTE

Coarse adjustment of reel height is accomplished by loosening the two hex head allen screws on the motor shaft collar. TEAC allen (hex head) wrench is required(order No. 50860210).

- Access to these screws is from the top of the unit.
- After loosening these screws slide the shaft to the desired height, using the motor mounting plate as a reference.
- Turn fine adjustment screw to full clockwise.

### Fine Adjustment

- If perfect alignment cannot be obtained in this manner, a vernier (fine) adjustment is provided.
- The screw in the outer end of the motor shaft can be used to correct up to approximately 0.004 inches.

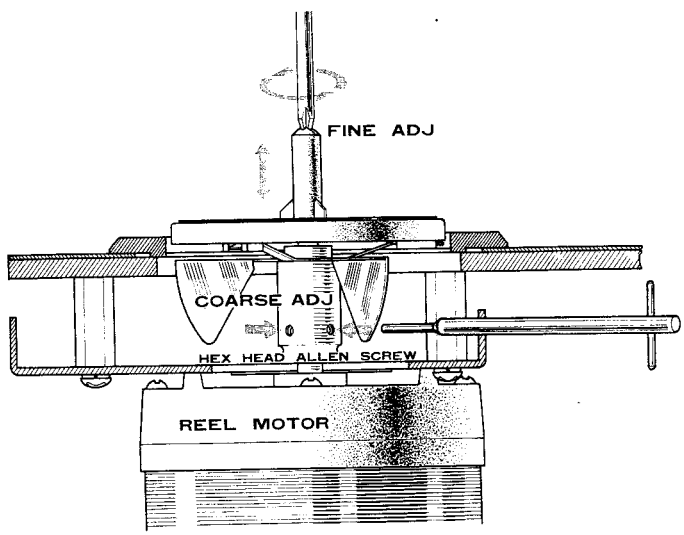



Fig. 7-8 Adjustment -Reel Table High-

## BRAKE TORQUE

NOTE

The brake torque is actuated mechanically. Pressure is set by the variable spring force.
While making this measurement and adjustment, be carefull not to bend the brake bands.
The cleaning of the brake-drum or the brake-shoe is required only when necessary. Because the brake-torque may change by the cleaning. When necessary, use TEAC Cleaner TZ-251B. Never use other cleaning kit. After cleaning, make running enough, the check the brake-torque in the stable state.

1. Brake adjustments are made with no power applied to the unit.
2. Place an empty 4" hub reel on the left reel table, and fasten one end of a 30" length of string to the reel anchor.
3. Wind several turns of string counterclockwise around the hub and attach a suitable spring scale to the free end of the string.
4. Pull the spring scale away from the reel, making sure that the string does not rub the reel flanges.
5. Take a reading only when the reel is in steady motion since the force required to overcome static friction will produce a false, excessively high initial reading.
6. The reading should be 900 - 1,100g-cm(13 - 14oz-inch).
7. If adjustment is required, loosen the two screws shown and position the brake for optimum torque.
8. The adjustment of the right brake is the same, with the exception that rotations are clockwise.

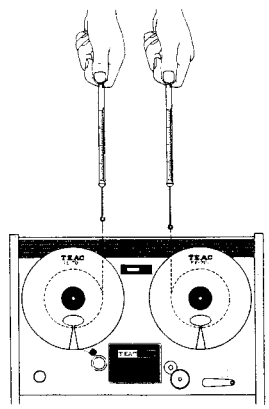


Fig. 7-6 Torque Measurement -Brake-

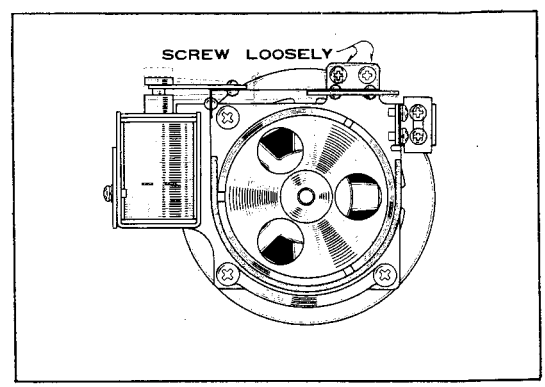



Fig. 7-7 Adjustable Location -Brake-

IMPORTANT

The difference in torques between the right and left brake should be kept within 50g-cm(0.7oz-inch).

## REEL HEIGHT ADJUSTMENT

Adjustment of reel height should be necessary only after a motor has been replaced.
The following procedure should be closely followed.

### Coarse Adjustment

NOTE

Coarse adjustment of reel height is accomplished by loosening the two hex head allen screws on the motor shaft collar. TEAC allen (hex head) wrench is required(order No. 50860210).

- Access to these screws is from the top of the unit.
- After loosening these screws slide the shaft to the desired height, using the motor mounting plate as a reference.
- Turn fine adjustment screw to full clockwise.

### Fine Adjustment

- If perfect alignment cannot be obtained in this manner, a vernier (fine) adjustment is provided.
- The screw in the outer end of the motor shaft can be used to correct up to approximately 0.004 inches.

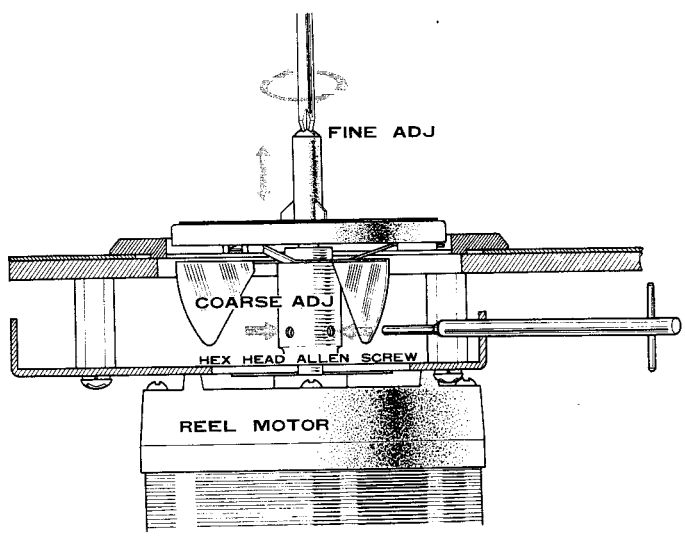



Fig. 7-8 Adjustment -Reel Table High-

## FLUTTER

Flutter should be measured in playback mode using a TEAC flutter free tape YTT-2003·2002 and a Sentinel Inc model FL-3D-1 flutter meter.
Measurement of flutter should be made in accordance with NAB standards.
Values obtained by a different standard or equipment cannot be compared.
Flutter should not exceed 0.12% for 7-1/2ips and 0.15% for 3-3/4ips.
These figures apply to any tape position and direction(such as full take-up reel, full supply reel or about mid point). If flutter is excessive, refer to trouble shooting chart in this manual.

## TAPE SPEED

The tape speed should be measured using TEAC flutter free tape, model YTT-2003·2002
These tapes contain a highly accurate 3kHz tone.
Connect a digital frequency counter to either line OUTPUT jack.
The indicated frequency should be 3kHz ±0.5% for all speeds.

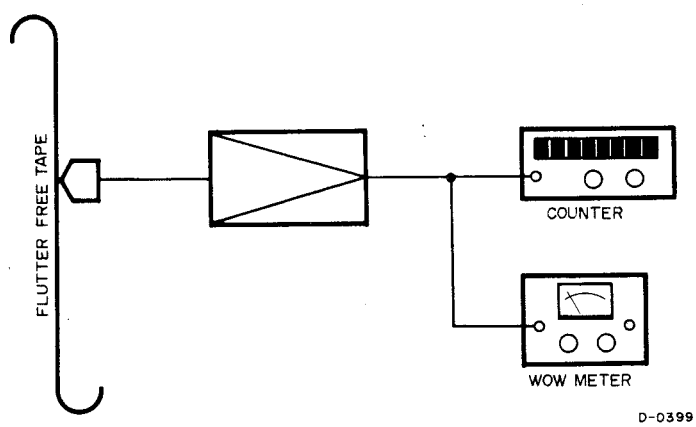



Fig. 7-9 Test Equipment Set-Up Flutter And Tape Speed

## FAST WIND TIME

NOTE

Clean all tape guide components and check for proper AC line voltage.

Using a 1,200 foot tape on a 7" reel, the fast wind time(fast forward or fast rewind) should be 100 seconds or less.

## VOLTAGE AND FREQUENCY CONVERSION

Unit must be set to the power line frequency available. Improper frequency setting will result in a 20% error between the tape speed and reel motors torque.

NOTE

US Model is preset to 117V AC and 60Hz. No frequency conversion is required. If it should be necessary to convert the A-2500 unit it may be easily accomplished as follows:

### Voltage Conversion

The A-2500 may be set for 100, 117, 200, 220 or 240 volts. To change the voltage unscrew the fuse in the center of the voltage selector plug. Pull out the plug and reinsert it so the desired voltage shows in the cutout. Reinstall the fuse.

Fig. 7-10 Voltage Conversion

### Frequency Conversion

1. Set frequency selector switch on the rear of the unit to the required frequency. The slide switch in the figure, changes reel motor torque by changing the value of the starting capacitor. Set the slide switch to match line frequency in your area.
2. Remove the rear plate. (Refer to "REMOVING THE REAR PLATE".)
3. Move the drive belt on the pulley and flywheel. In this equipment, the motor pulley has two steps, permitting frequency change by simply moving the drive belt from one step to the other. The belt moving process should begin from the flywheel when converting from 60 to 50Hz operation, or from the pulley when converting from 50 to 60Hz operation. Following completion of the process, turn the flywheel manually to ensure that the belt has been positioned properly. The smaller diameter portion of the motor pulley is for 60Hz operation.

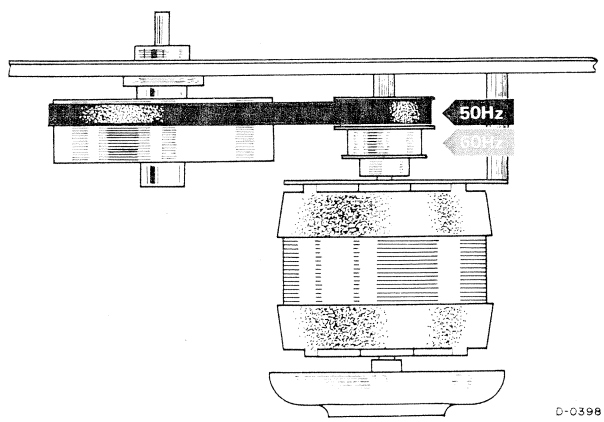



Fig. 7-11 Frequency Conversion

# 8. MEASUREMENT AND ADJUSTMENT

# -ELECTRICAL-

GENERAL NOTICE

Before performing maintenance on this unit, thoroughly clean and demagnetize the entire tape path.

It is important that the unit be set to the proper voltage and frequency for your locality.

TEAC specified standard test tapes and test equipment must be used when performing maintenance to insure reliable results.

Procedures for checks and adjustments, unless otherwise indicated, are for the left channel at a tape speed of 7-1/2ips. The same procedures are to be applied to the right channel and again for both channels at 3-3/4ips, and both directions of playback.

All controls mentioned in this book will be printed in bold letters and will be exactly as they appear on the unit.

Double designated symbol numbers refer to left channel/right channel.

T H D : Third Harmonic Distortion.

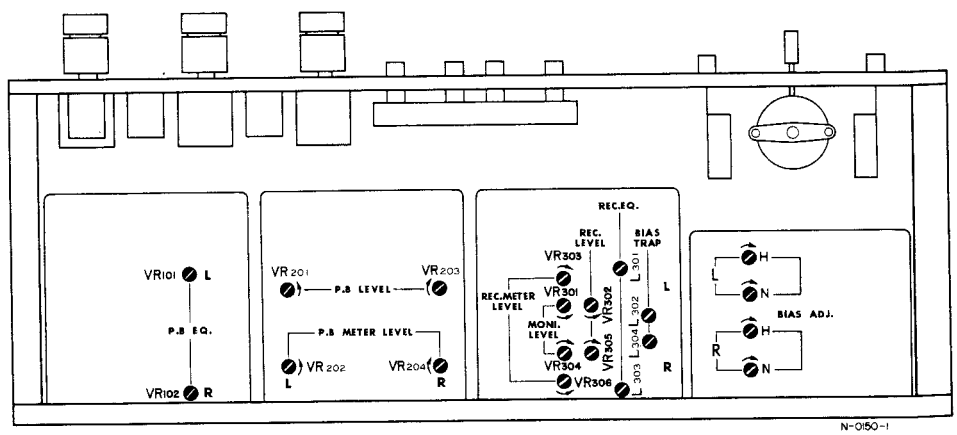



Fig. 8-1 Adjustable Parts Location

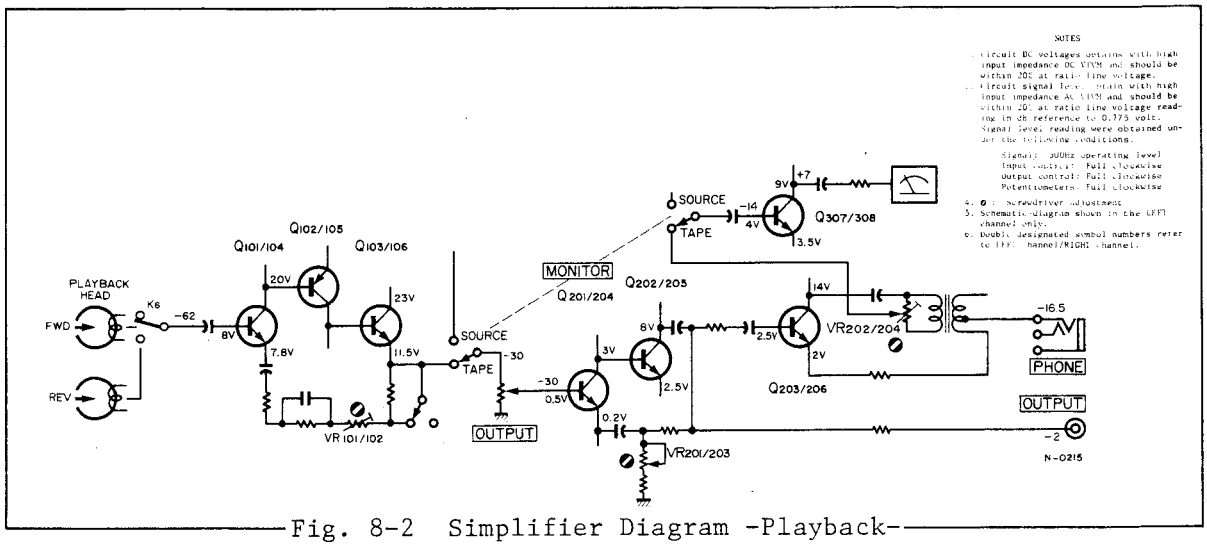



Fig. 8-2 Simplifier Diagram -Playback-

## PLAYBACK HEAD AZIMUTH ADJUSTMENT

Coarse Adjustment

1. Connect a level meter to either OUTPUT jack.
2. Thread a TEAC test tape YTT-1003 on the unit.
3. Play the 15kHz test tone in section 2 of the test tape.
4. Slowly rotate the azimuth screw until maximum indication is obtain on the level meter. Repeat step 4, procedure for reverse head.

NOTE

If during playback, a slight pressure on the heads results in a rise of the reading of the level meter, head alignment adjustments should be accomplished.

Fine Adjustment

CAUTION

After coarse adjustment, do not make large corrections, turn Azimuth screw 1/4 turn or less.

5. It is absolutely essential to accomplish the coarse adjustment before using this method to avoid phase errors larger than 45°.
6. Connect the test equipment as shown in Fig. 8-11
7. Play a 10kHz signal and adjust the azimuth screw until the oscilloscope shows that the signals are less than 45° in phase. Repeat above step for reverse head.
8. Secure the screw with a drop of LOCTITE.

## SPECIFIED OUTPUT LEVEL SET

NOTE

Connect a 10kohm load to the output jacks when not using the TEAC M-826A

9. Play the 400Hz tone in section 1 of the test tape. This tone is

recorded at operating reference level (1% of the THD level).

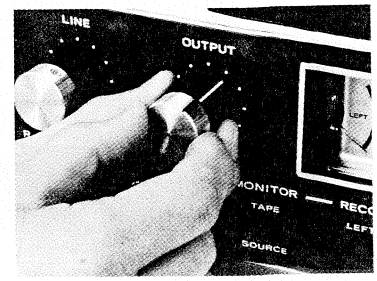
10. Turn the OUTPUT controls to the one o'clock position.
11. Adjust VR201/203 for -8dB reading on level meter.

NOTE

Level differences during forward and reverse playback should not exceed 2dB. If larger, clean and demagnetize heads, check the head alignment.

IMPORTANT

This is the specified output level set. Do not disturb this setting until the remaining adjustments have been completed.




VU METER CALIBRATION - PLAYBACK -

12. While playing the 400Hz tone (1% THD) in section 1 of the test tape, adjust VR201 (left channel) and VR202 (right channel) for reading of 0 VU on the VU meters.

FREQUENCY RESPONSE

13. Play the test tones from 15kHz down to 50Hz. (Recorded at 10dB below operating reference level.)
14. Compare the readings obtained on the level meter with the response limits given in Fig 8-3.
15. In case of any deviation in the response curve, check head azimuth alignment, clean the heads, then adjust VR101 (left channel) and VR102 (right channel) for the best response.

NOTE

Setting of VR-101/102 should be done in forward mode, at 7-1/2 ips. Do not adjust in reverse mode or at 3-3/4ips.

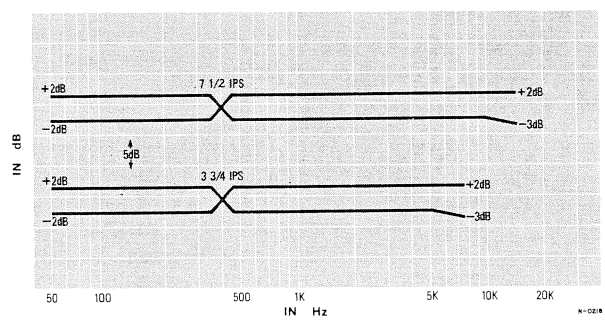
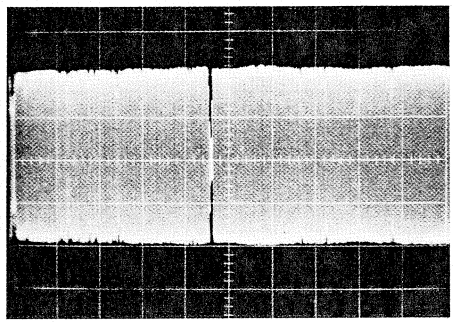



Fig. 8-3 Frequency Response Limits

## LEVEL VARIATION

16. With a level meter connected to the OUTPUT jacks and using the TEAC test tape the readings listed above should be obtained at the specified frequency and tape speed.



| | |
|---|---|
| 7-1/2ips: | 0.5dB at 500Hz |
| | 1.0dB at 10kHz |
| 3-3/4ips: | 1.0dB at 5kHz |

Fig. 8-4 Level Variation Wave Form

## SIGNAL TO NOISE RATIO

IMPORTANT

Output control should be at specified output level.
The signal to noise ratio must meet factory standards.
The values given are obtained using an unweighted level meter while the supply and take up motors are running.
The values are with reference to a 3% THD level.

1. Thread a tape on the unit, leaving the tape outside the capstan and pinch roller.
2. Place the unit in the PLAY mode ( ▶ ) (the tape will not move).
3. The level meter connected to the OUTPUT jacks should indicate -56dB or less.
4. This corresponds to a signal to noise ratio of 48dB (difference between residual noise -56dB and specified output level -8dB for 1% THD). For a 3% THD signal to noise ratio, 6dB is added, giving 54dB (3% THD is 6dB above 1% THD level).

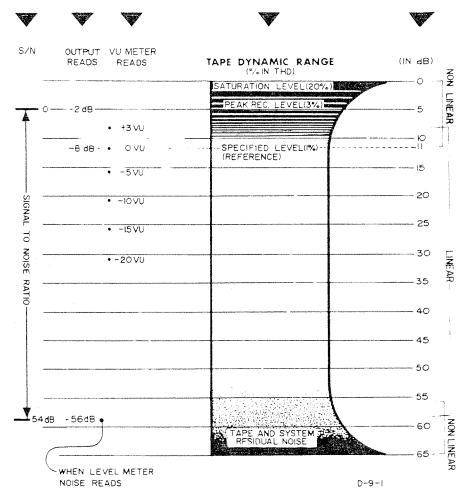



Fig. 8-5 Signal/Noise Computation

## MINIMUM INPUT LEVEL ADJUSTMENT

LINE Input

1. Connect an AF oscillator to the LINE IN jacks.
2. Apply a 500Hz signal at -18dB.
3. Place the MONITOR switch in the SOURCE position and turn the LINE controls fully clockwise.
4. Adjust VR301/304 to obtain a specified output level of -8dB at OUTPUT jacks.

MIC Input

5. After adjusting VR301/304, apply a 500Hz signal at -68dB to the MIC IN jacks.
6. Rotate the MIC controls fully clockwise.
7. The output should be -8dB(specified output level).

NOTE

Mic input requires no adjustment, only an operational check. After completing the check rotate mic controls fully counter-clockwise to eliminate noise from mic jacks or mic preamplifiers.

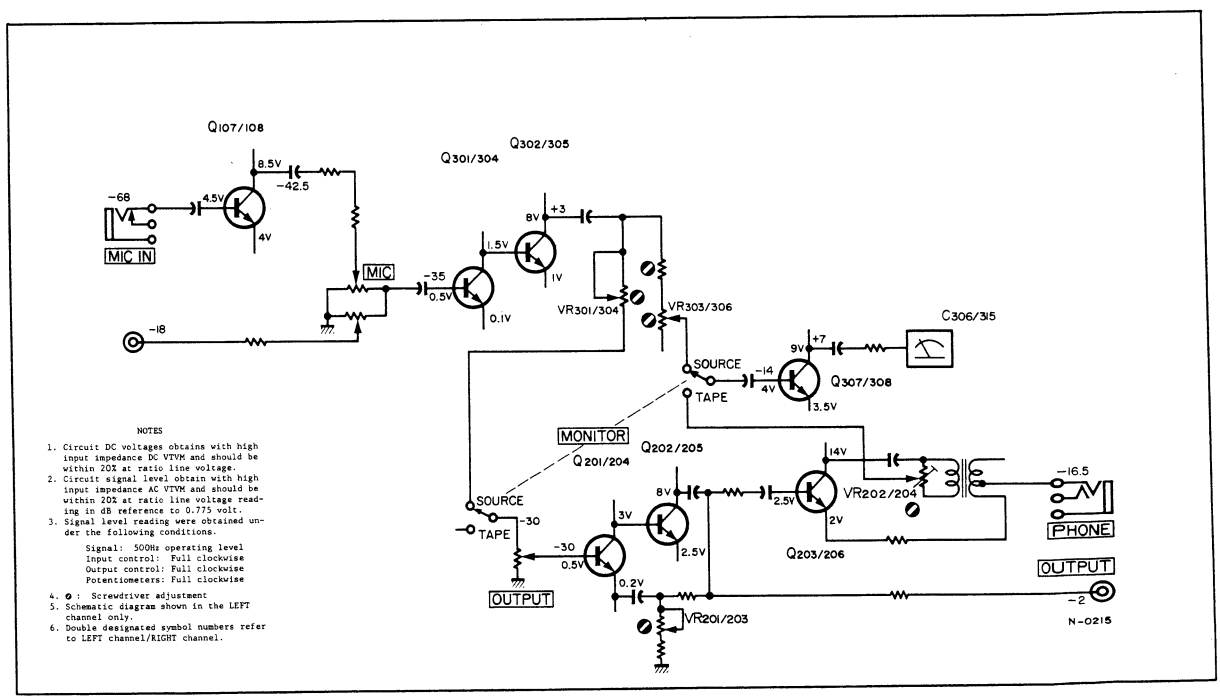



Fig. 8-6 Simplified Diagram -Monitor-

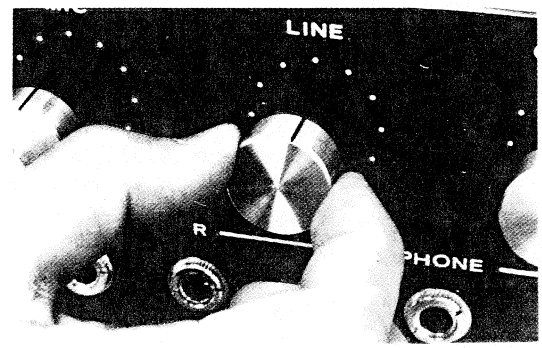
## SPECIFIED INPUT LEVEL SET

8. Apply a 500Hz signal at -8dB to the LINE IN jacks.
9. Turn the LINE controls for -8dB at the OUTPUT jacks.

NOTE

Do not disturb the specified input level position of these controls until the remaining checks and adjustments are completed.

The difference between the channels must not exceed 2dB as indicated on the level meter. If it is not within limits, readjust VR301/304.




## VU METER CALIBRATION -RECORD-

10. With the same 500Hz signal at -8dB applied and the MONITOR switch in SOURCE, adjust VR303/VR306 for 0 VU on meters.

## RECORD PERFORMANCE

IMPORTANT

Before making any adjustments on the record amplifier, be sure that all tests in the HEAD ALIGNMENT, PLAYBACK and MONITOR PERFORMANCE sections have been accomplished and that all adjustments are correct.

Optimum recording performance (Bias levels, recording levels and frequency response) is dependent upon tape characteristics. The TEAC A-2500 (1250) is factory set for Scotch type 203 tape. Service data is based upon the use of Scotch 203 or equivalent tape.

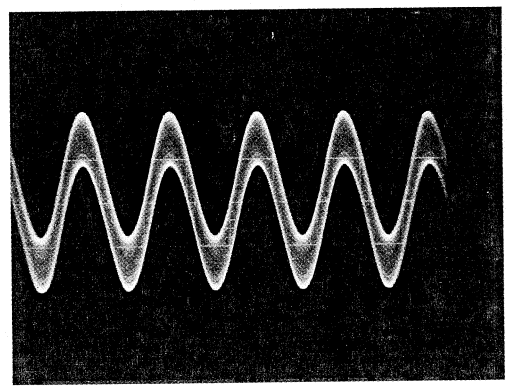


Fig. 8-7 Bias Leakage

### BIAS TRAP ADJUSTMENT

NOTE

The bias trap tank circuit keeps the bias signal from reaching the record and monitor amplifier and under normal no signal conditions, voltage should not be present at the OUTPUT jacks.

1. Thread blank tape or block tension arm in on position.
2. Place the unit in STEREO RECORD mode and PAUSE with no signal applied.
3. Connect a VTVM to the junction of C308, L302.
4. Adjust L302 for a minimum reading.
5. Connect the VTVM to the junction of C317, L304. Adjust L304 for a minimum reading.

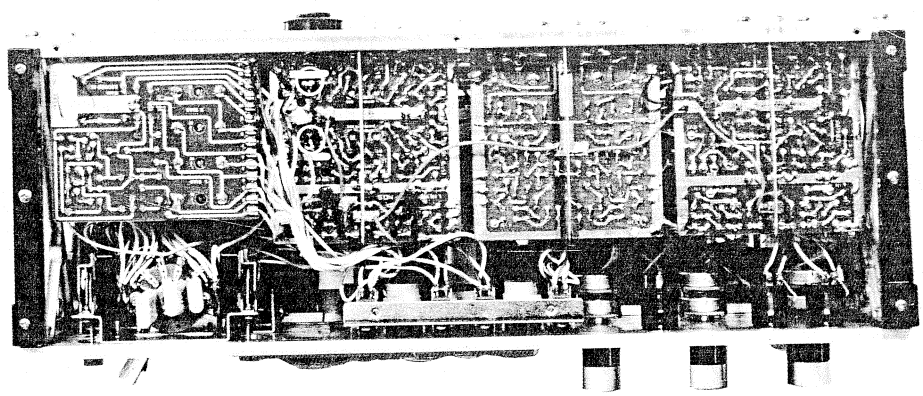


Fig. 8-8 Check Point -Bias Traps-

NOTE

These adjustment are made only at 7-1/2ips tape speed.

HIGH position

1. Thread record test tape scotch 203 on the unit.
2. Connect a level meter to the OUTPUT jacks.
3. Connect an AF oscillator to the LINE IN jacks.
4. Set the AF oscillator for 500Hz at -10dB with the LINE control at specified input level position.
5. Place the BIAS switch to HIGH position.
6. Place the unit in the STEREO RECORD mode with the MONITOR switch in the TAPE position.
7. Adjust capacitor VC401/403 for a peak on the level meter.
8. Turn the capacitors clockwise until a decrease of 0.5dB is obtained.

NORMAL position

9. Thread a Scotch 150 tape on the unit.
10. Place the BIAS switch in NORMAL position.
11. Repeat the above procedure for capacitors VC402/404.
12. After completing the adjustments, return the BIAS switch to HIGH position.

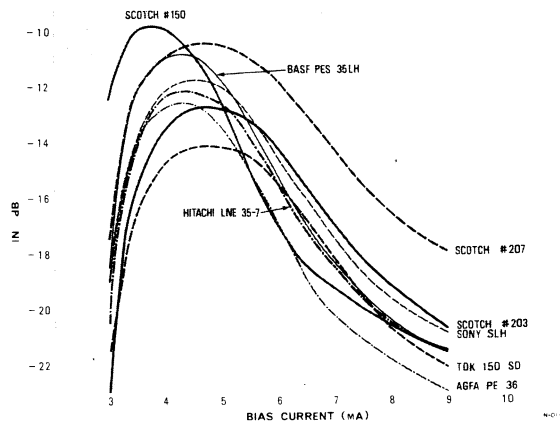



Fig. 8-9 Bias Current Characteristic

in figure below.

hFE

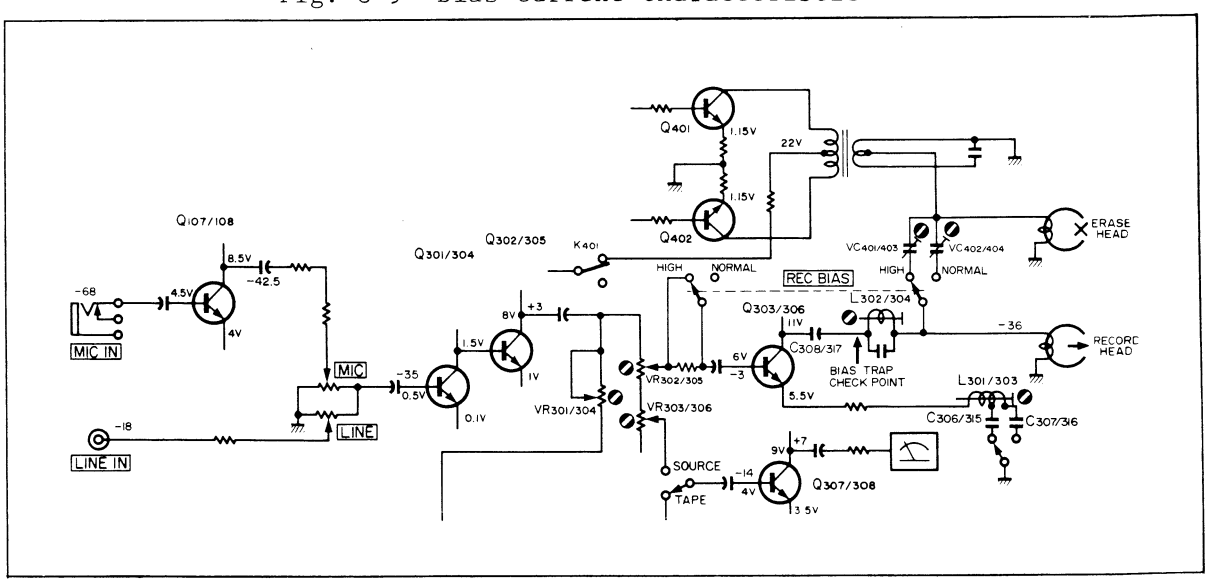



Fig. 8-10 Simplified Diagram -Record-

## RECORD HEAD AZIMUTH ADJUSTMENT

Coarse Adjustment

NOTE

The effect of turning the azimuth screw will not immediately register on the level meter. A slight delay will be noticed. Therefore, the screw must be rotated slightly, and then pause to see the effect.

1. Connect a Level Meter to the OUTPUT jacks and an AF oscillator to the LINE IN jacks.
2. Place the MONITOR switch to SOURCE and adjust the AF oscillator to obtain a signal of 15dB below the specified output level. (The level meter will indicate -23dB.)
3. Make certain that the LINE control is at the specified input level position, then set the AF oscillator to 10kHz.
4. Thread a record test tape on the unit and place the unit in the STEREO RECORD mode.
5. Place the MONITOR switch in the TAPE position.
6. Adjust the azimuth screw for maximum indication of the level meter.

Fine Adjustment

NOTE

It is absolutely essential to accomplish the coarse adjustment before using this method, to avoid phase error larger than 45°.

7. Connect the test equipment as shown in Fig
8. Apply a 7.5kHz signal at -23dB to the LINE IN jacks and record this signal.
9. Carefully adjust the azimuth screw until the oscilloscope shows the signal to be in phase.
10. Secure the screw with a drop of LOCTITE.

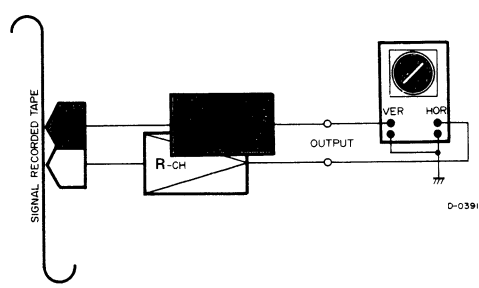



Fig. 8-11 Fine Adjustment Set-Up -Head Azimuth-

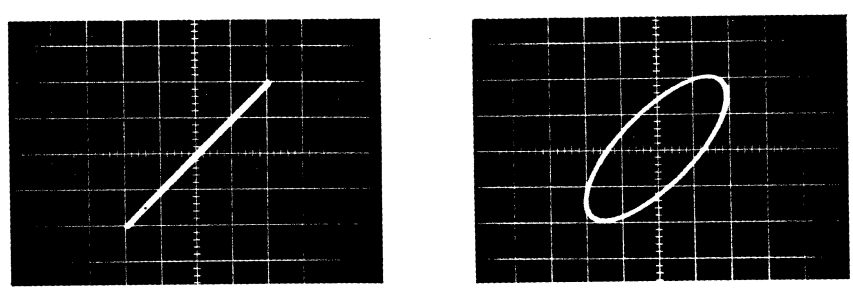


Fig. 8-12 Phase Shift

## RECORD LEVEL SET

1. The OUTPUT controls must be at the specified output level position (-8dB at OUTPUT jacks).
2. Apply a 500Hz signal at -8dB to the LINE IN jacks.
3. Thread record test tape Scotch 203 on the unit, then set the BIAS switch to HIGH position.
4. Place the unit in the STEREO RECORD mode with the MONITOR switch in the TAPE position.
5. Adjust VR302/305 for a reading of 0 VU on the VU meters (-8dB at the OUTPUT jacks).

NOTE

Adjustment of REC level VR302/305 or VU meter VR303/306 calibration will interact, after adjusting VR302/305, recheck VR303/306 to ascertain that it is still correct.

## OVERALL FREQUENCY RESPONSE

IMPORTANT

To avoid saturation of the tape, these checks should be made at least 15dB below the specified input level.
Any bias signal feeding into the test equipment should be filtered out by adjusting the external bias trap. A broad band VTVM may be used on the output of the unit for this adjustment.

1. Adjust the AF oscillator to obtain an output level of -23dB(approx. 15dB below specified output level) at OUTPUT jacks.
2. Place BIAS switch in HIGH position, thread Scotch 203 tape on machine.
3. Apply a signal swept from 50Hz to 15kHz and record it on the test tape.
4. Repeat the above procedure for 3-3/4ips using a signal swept from 50Hz to 7.5kHz. Refer to Fig 8-3 for response limits.

   Since response of TEAC M-826 falls off sharply above 20kHz the extra bias trap is not required.

NOTE

If the response is not uniform, the heads should be checked for accumulated oxide and dirt.
Then, if no dirt is found, the REC equalization coils L301(L-CH) and L303(R-CH) should be adjusted.

5. If adjustment is required at 3-3/4ips tape speed, C307(left channel) and C316(right channel) must be changed. If the high end response is too high, a lower value capacitor must be installed.

## OVERALL FREQUENCY RESPONSE CHECK, *BIAS IN NORMAL POSITION*

NOTE

Operational check only. No adjustment required.

6. Thread deck with Scotch 150 tape.
7. Place BIAS switch in NORMAL position.
8. Repeat the overall response check at both tape speeds.
9. The record equalization should give the proper frequency response.
10. After completing this check, return BIAS switch to HIGH position.

## OVERALL SIGNAL TO NOISE RATIO

IMPORTANT

Clean and demagnetize the heads before proceeding. It is extremely important that all tests described in the proceeding paragraphs have been completed and that all controls adjusted are left unalterd.

1. Thread a record test tape(Scotch 203) on the unit.
2. Remove the AF oscillator from the LINE IN jacks.
3. Place the unit in the RECORD mode with no signal applied.

NOTE

Noise readings, when taken while recording, may be affected by the bias signal which could be leakings through. It is therefore good practice to rewind the no signal recorded section and take the noise reading during playback.

4. Note the point on the index counter where recording begins.
5. Rewind the tape and play it back.
6. The noise level as indicated on the level meter should be -52dB or less.

NOTE

Bias, erase and playback amplifier noise are all included in this measurement.
All frequencies between 50Hz and 15kHz are measured unweighted.

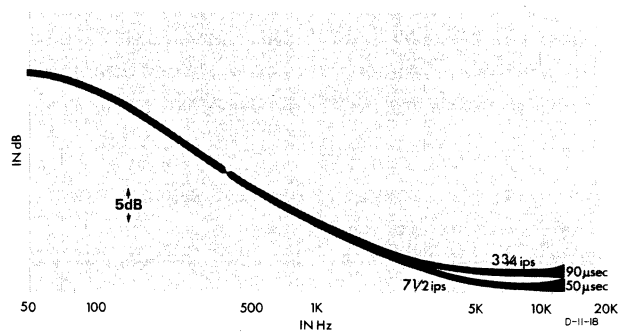
## ERASE EFFICIENCY

NOTE

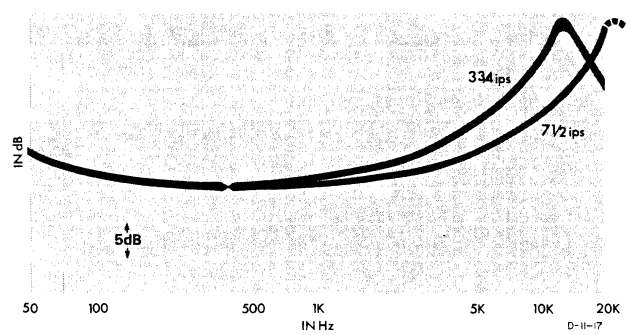
To measure erase efficiency, a 1kHz narrow band filter (TEAC M204 CL filter) must be used.

Due to the high level of this signal, it is recommended that only a short recording be made (approximately 30 seconds) to prevent damage to the VU meter.

1. Apply a 1kHz signal at 0dB to the LINE IN jacks.
2. Place the unit in RECORD mode and record this signal.
3. Rewind the recording to the beginning and remove the AF oscillator from the LINE IN jack.
4. Place the unit in RECORD and record over this portion of tape again.
5. Rewind the tape to the starting point and connect a level meter to the OUTPUT jack, through the 1kHz band pass filter.
6. Play the erased portion of the tape.
7. The level meter should indicate -60dB or less.




PLAYBACK




RECORD

Fig. 8-13 Typical Response Curve

# 9 PREVENTIVE MAINTENANCE

Fig. 9-1 Maintenance Equipment

## CLEANING

When excess oxide accumulates on the surface of components where tape passes, normal operation and characteristics cannot be expected. Periodical cleaning should be done with proper cleaning materials. Refer to Operating Instructions.

## DEMAGNETIZATION

Metal parts incontact with the tape will become magnetized after long periods of use (except erase head). Magnetization of record/playback head causes noise in recording and reproduction and it should be demagnetized at every 50 hours of use, and before any important recording is done. Refer to Operating Instructions.

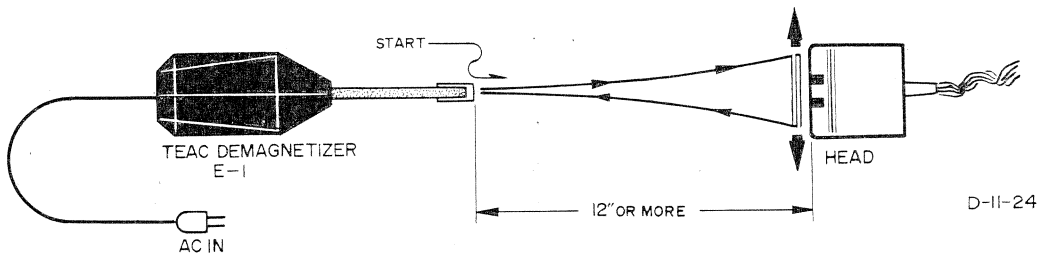



Fig. 9-2 Demagnetization

## LUBRICATION

Under normal conditions the unit will not require lubrication. Most of the bearings and bushings are of the oilless type. Since there are many rubber parts in the transport mechanism, excessive or improper lubrication could cause problems. If lubrication is required, the following points should be lubricated:

Capstan bearing, pinch roller shaft. ..... 1 drop
Motor ..... 1 - 2 drops in the plastic tube

Parts to be lubricated should be cleaned and old oil and dirt removed before relubricating. Observe instructions as to type of oil, points to be lubricated and amount of lubrication required.

Motors should be lubricated immediately after use while still warm. After oiling motors keep the unit in the horizontal position for 2 – 3 hours to allow thorough absorption of oil.

## VENTILATION

During use the face plate of the A-2500 may become quite warm to the touch, this is entirely normal.
As long as the air vents in the rear plate are unobstructed, the unit will not overheat.
However, if the unit is placed snugly against a wall, or free air eventually cause trouble.

# 10 TROUBLE SHOOTING

NOTE

About 50% of the units that are returned for repair do not vunction properly due to poor connections, dirty heads, poor tape, or improper operation.
Therefore, read your operating instructions and take a minute to carefully check the machine yourself before shipping it back for repair.
The following guide lists specific difficulties that cound occur in the A-2500 .
Several possible causes are listed for each malfunction.
Visually inspect the unit for any damage such as broken or burned components or wiring, loose connections, etc.

## TRANSPORT SECTION

| | |
|---|---|
| UNIT COMPLETELY INOPERATIVE | - AC plug<br>- Fuse<br>- Voltage selector<br>- Power switch(SW-1) |
| TAPE WILL NOT MOVE IN "PLAY" MODE | Capstan Does Not Turn<br>- Belt off<br>- Tension arm switch SW-2<br>- Capstan motor<br>- Phase advance capacitor C-6<br>- Tape speed switch SW-8<br>- Reverse Relay K-3<br><br>Pinch Roller Fails To Engage Capstan<br>- Capstan solenoid<br>- STOP button SW-4<br>- Lever switch SW-7<br>- PLAY button ( ◀ ▶ )<br>- Improper arm stoper adjustment |
| RIGHT REEL DOES NOT ROTATE | - Phase advance capacitor C-5<br>- Brake solenoid |
| LEFT REEL MOTOR DOES NOT ROTATE | - Phase advance capacitor C-4<br>- Brake solenoid |
| FAST WIND DOES NOT WORK | - Relay K-1 |
| TAPE SPEED WRONG | - Belt on wrong pulley |
| EXCESSIVE WOW AND FLUTTER | - Belt stretched or oily<br>- Capstan shaft dirty<br>- Pinch roller dirty or pressure incorrect<br>- Reel torque (back tension) improper<br>- Left reel motor<br>- Supply reel height |

| | |
|---|---|
| DOES NOT REVERSE | - Sensing pole dirty<br>- Foil Defective<br>- Sensing relay K-5 |
| TAPE DAMAGE IN PLAY MODE | - Warped reel<br>- Reel table height |
| EXCESS SLACK WHEN STOPPING FROM FAST MODE | - Brake torque unbalanced |
| TAPE SQUEAL | - Tape path components dirty<br>- Tape defective |

## PLAYBACK SECTION

| | |
|---|---|
| NO PLAYBACK | - MONITOR switch in SOURCE<br>- Back connections loose<br>- OUTPUT control fully counter clockwise<br>- Tape lifters actuated<br>- Preamplifier |
| LOSS OF HIGH FREQUENCIES | - Playback head dirty<br>- Playback head worn or out of alignment (azimuth)<br>- Playback equalization network<br>- Reel torque(back tension) improper |
| TAPE HISS | - Improper tone control setting on amplifier<br>NOTE<br>A highly efficient tweeter in the speaker system will cause this hiss to be prominent. |
| UNBALANCED CHANNELS ON VU METER | - Record levels of tape unbalanced<br>- Heads dirty<br>- Output controls<br>- VU meter |

## RECORD SECTION

| | |
|---|---|
| NO RECORD | Record Lamp Does Not Light<br>- Record relay K-401<br>- Record mode switch S503, S504<br><br>VU Meter Not Indicating |

| | |
|---|---|
| | - Tape lifters<br>- Heads dirty |
| NO RECORD, NO ERASE<br>( VU Meter Indicating) | - Bias oscillator |
| DROP OUT, HISSING NOISE | - Tape faulty<br>- Heads magnetized<br>- Bias adjustment improper |
| UNBALANCED CHANNELS | - Heads dirty |

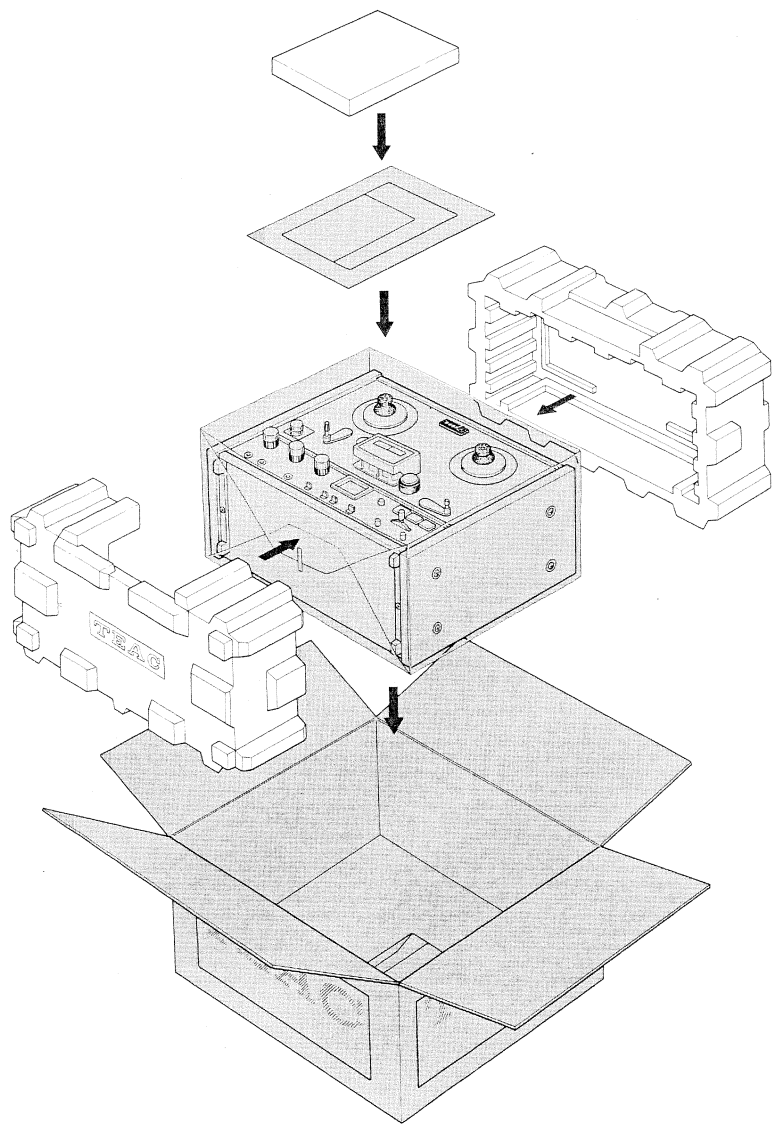
# 11 WARRANTY

Your TEAC equipment has been manufactured under strictest quality control. Its normal operation is under warranty. However, warranty terms may vary with the country(area) in which it was purchased and for different models of equipment.
The warranty terms are fully described in the enclosed warranty card. Please read the card for complete details.

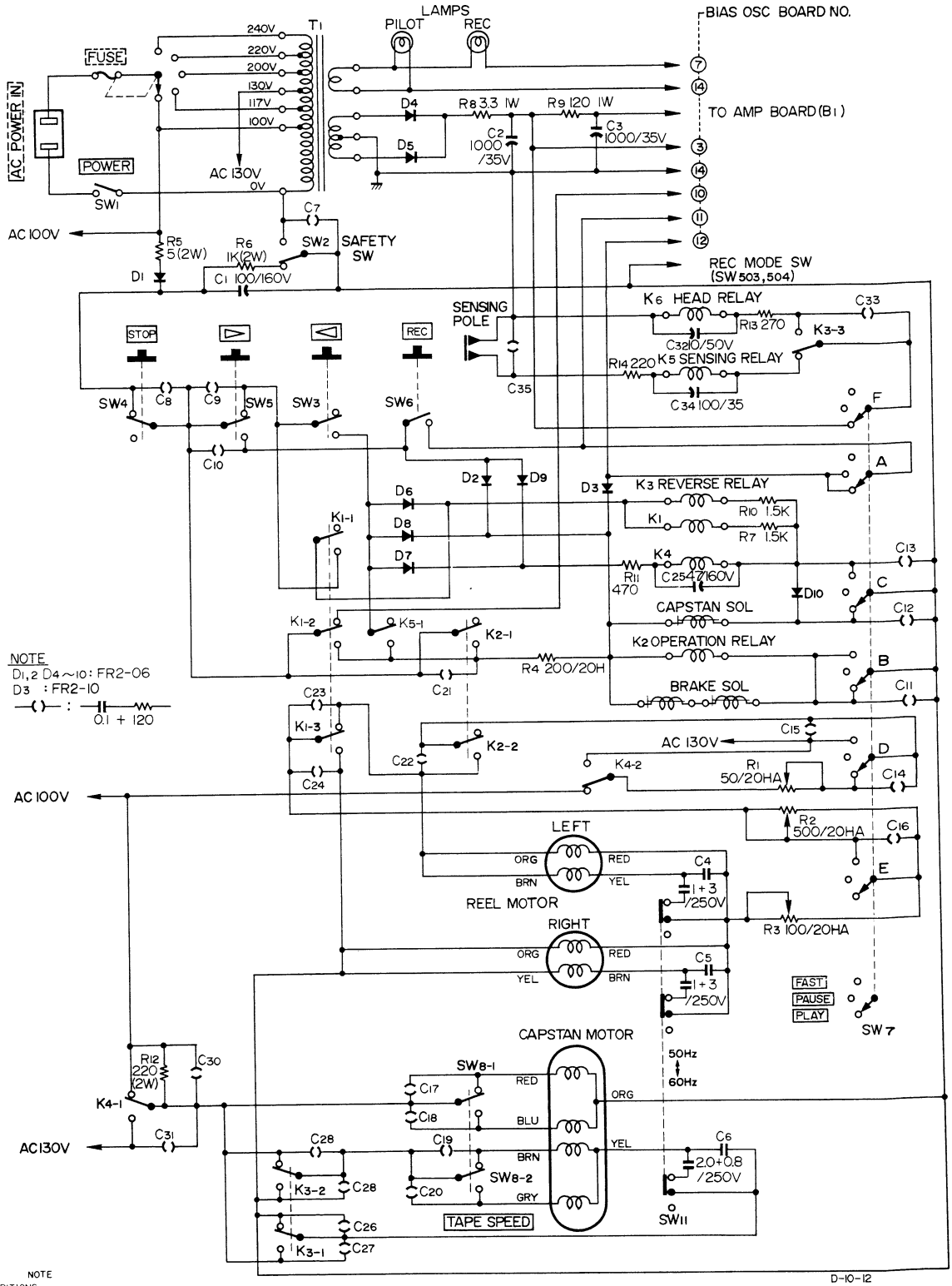
# 12 PACKING FOR SHIPMENT

SHIPPING INSTRUCTIONS

If the unit is to be sent back to the TEAC factory (service department) for repair, carefully pack as shown below.



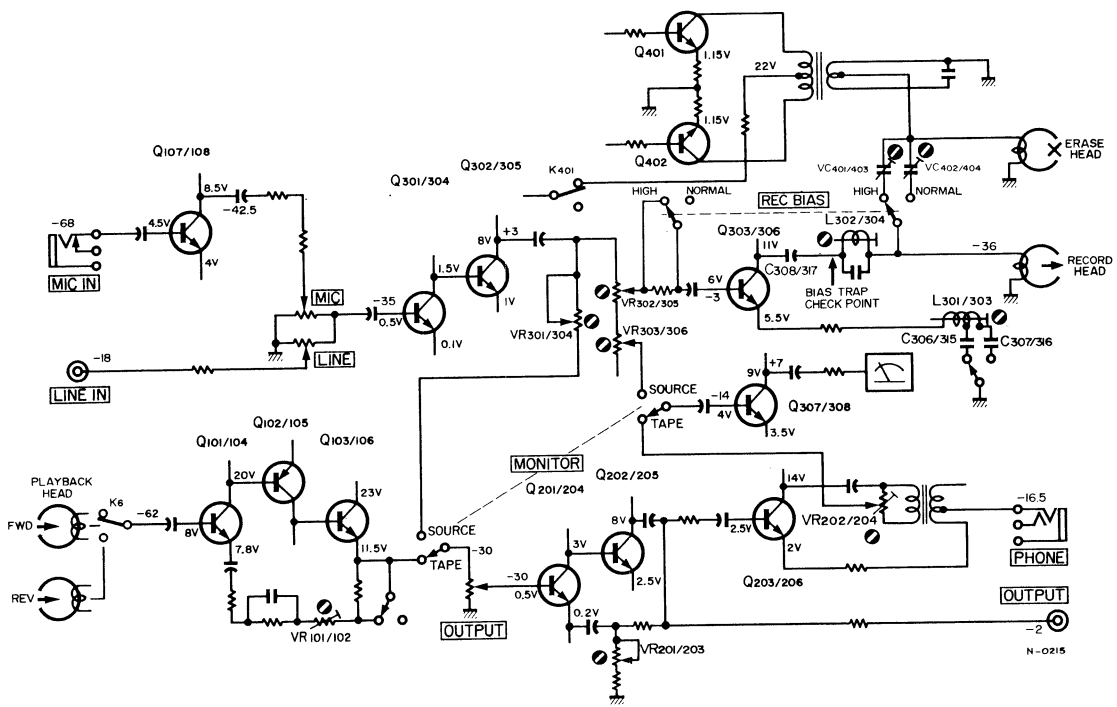
# 13 SCHEMATIC DIAGRAMS




Specifications and components subject to change without notice.

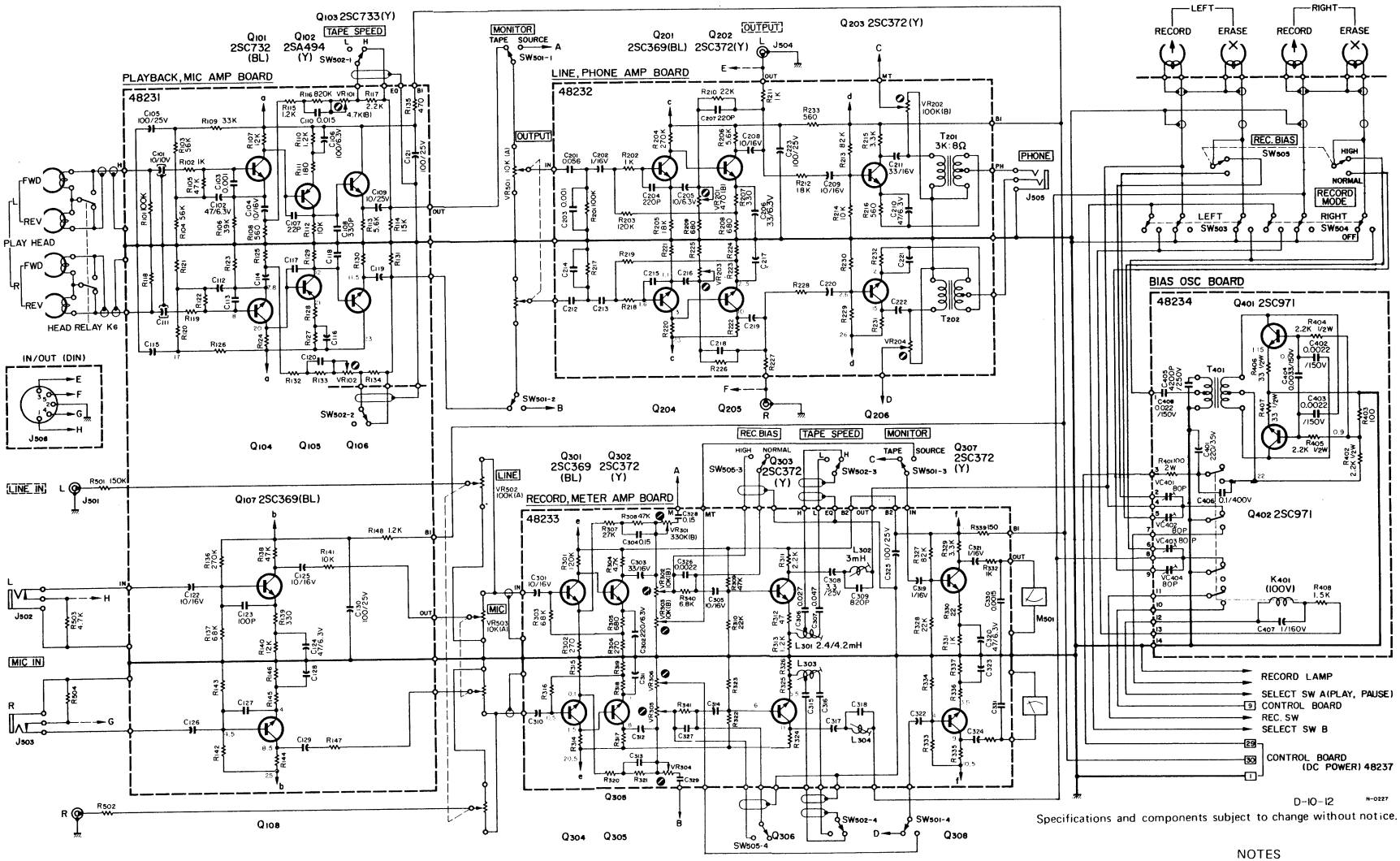
# TEAC A-2500 SCHEMATIC DIAGRAM

## TAPE TRANSPORT




# TEAC A-2500 SIMPLIFIED DIAGRAM

## SIGNAL LEVEL CIRCUIT




D-10-12 N-0227

Specifications and components subject to change without notice.

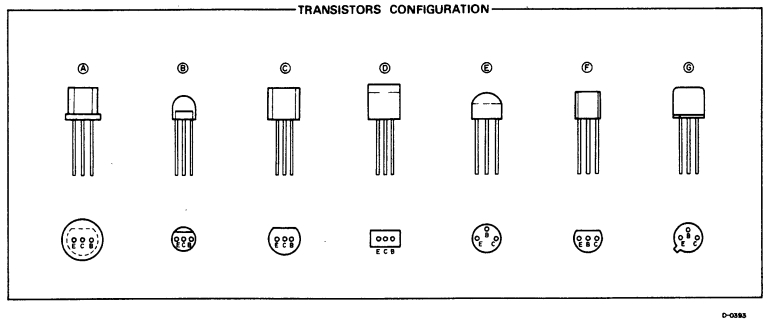
NOTES

Schematic diagram shown in **PLAYBACK** mode.
Unless otherwise specified:
All resistors values in ohms, ¼ watt, K = 1,000 ohms
All capacitors values, in micro farads
Screwdriver adjustment
□ :on front panel, □□□ :on rear panel

# TEAC A-2500 SCHEMATIC DIAGRAM

## PREAMPLIFIER

# 14 PRINTED CIRCUIT BOARD AND PARTS LIST



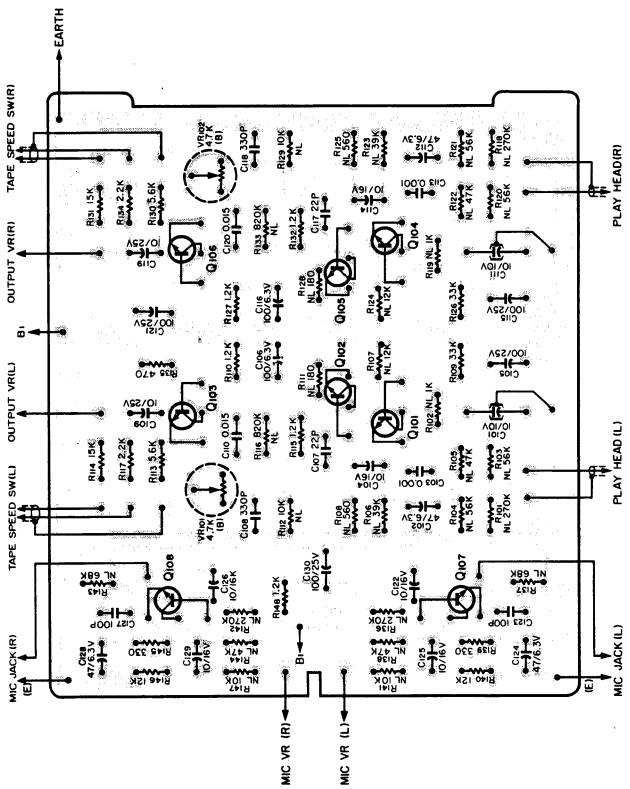

SILICON TRANSISTORS

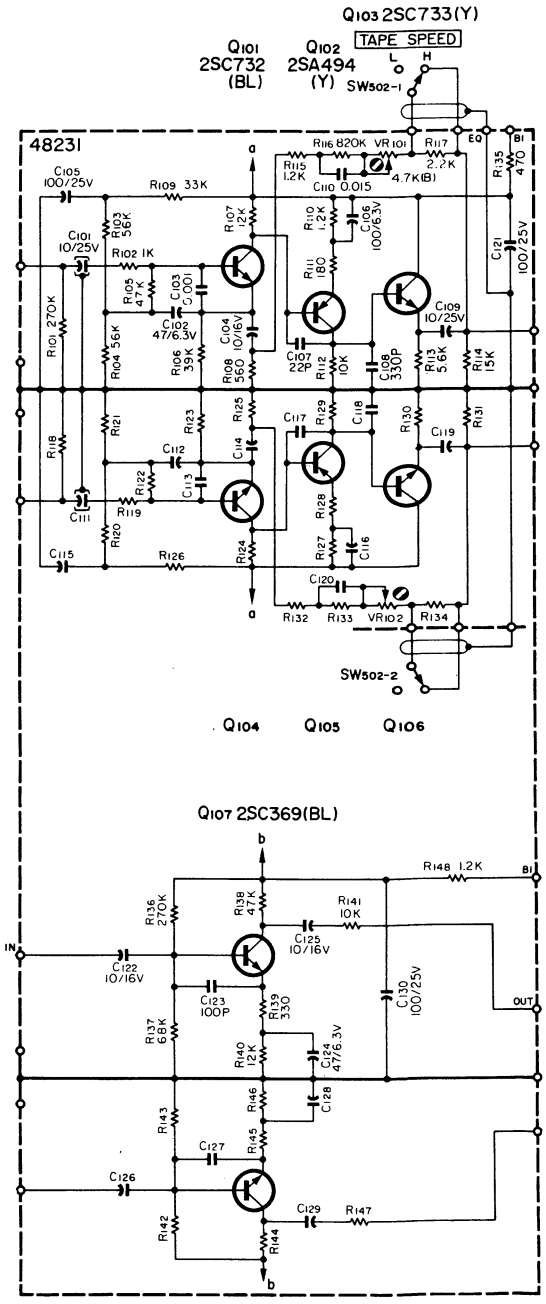
| | DESCRIPTION | | APPEAR-ANCE |
|---|---|---|---|
| PNP Type Low Noise | 2SA494(Y) | 120- 240 | A |
| | MPS6518 | 150- 300 | F |
| | 2SA666(I)(S) | | |
| | 2SA572 | | |
| | 2SA | | |
| PNP Type General | MPS6518 | 150- 300 | F |
| | 2SA564 | | |
| NPN Type Power | 2SC971 | 200- 400 | |
| | 2SC491 | 30- 250 | |
| | 2SC840 | | |
| | 2SD235 | 40- 240 | |
| | 2SC1226A | | |
| NPN Type Low Noise | 2SC732(V) | 600-1200 | A |
| | 2SC693(G)(U) | 280- 560 | B |
| | 2SC693(G)(D) | 280- 560 | B |
| | 2SC693(F)(U) | 160- 320 | B |
| | 2SC644(R) | 180- 360 | C |
| | 2SC644(S) | 260- 520 | C |
| | 2SC644(T) | 360- 700 | C |
| | 2SC458(L)(G) | 60- 500 | D |
| | 2SC1084 | | G |
| | 2SC1000(B)(L) | | A |
| NPN Type Low Noise | 2SC369(G)(R) | 200- 400 | A |
| | 2SC369(B)(L) | 350- 700 | A |
| | MPS6571 | 250-1000 | F |
| | CDC13000-1(C) | 240- 400 | E |
| NPN Type General | 2SC828(P) | 90- 180 | C |
| | 2SC828(Q) | 130- 260 | C |
| | 2SC372(Y) | 120- 240 | A |
| | 2SC733(Y) | 120- 240 | A |
| | 2SC458(L) | 60- 320 | D |
| | 2SC536(F) | 160- 320 | B |
| | 2SC536(E) | 100- 200 | B |

# MIC AND PLAYBACK EQ.AMPLIFIER

| CIRCUIT REF NO. | PARTS NO. | DESCRIPTION | 1ST | 2ND |
|---|---|---|---|---|
| | 50482311 | PC Board | 50482312 | |
| | | **SILICON TRANSISTORS** | | |
| Q101/104 | 50423660 | 2SC732 BL | | |
| Q102/105 | 50423650 | 2SA494 | | |
| Q103/106 | 50423510 | 2SC733 Y | | |
| Q107/108 | 50423660 | 2SC732 BL | | |
| | | **CARBON RESISTORS** | | |
| | | *ALL RESISTORS IN OHMS, 10% TOLERANCE, 1/4 WATTS UNLESS OTHERWISE NOTED* | | |
| R111·128 | 50515250 | 180 | | |
| R102·119 | 50515340 | 1k | | |
| R112·141 | 50515490 | 10k | | |
| R129·147 | 50515490 | 10k | | |
| R140·146 | 50515500 | 12k | | |
| R106·123 | 50515580 | 39k | | |
| R122·144 | 50515590 | 47k | | |
| R105·138 | 50515590 | 47k | | |
| R104·121 | 50515610 | 56k | | |
| R103·120 | 50515610 | 56k | | |
| R137·143 | 50515620 | 68k | | |
| R136·142 | 50515700 | 270k | | |
| R101·118 | 50515700 | 270k | 50515640 100k | |
| R116·132 | 50515770 | 820k | | |
| R135 | 50515300 | 470 | | |
| R108·125 | 50515310 | 560 | | |
| R127·148 | 50515350 | 1.2k | | |
| R110·115 | 50515350 | 1.2k | | |
| R132 | 50515350 | 1.2k | | |
| R113·130 | 50515460 | 5.6k | | |
| R140·146 | 50515500 | 12k | | |
| R109·126 | 50515570 | 33k | | |
| R114·131 | 50515510 | 15k | | |
| R139·145 | 50515910 | 330 | | |
| R117·134 | 50515380 | 2.2k 5% | | |
| VR101·102 | 50533460 | Potentiometer 4.7k 10ø | | |
| | | **CAPACITORS** | | |
| | | *ALL CAPACITORS IN MICRO FARADS UNLESS OTHERWISE NOTED* | | |
| C102·124 | 50554030 | Electrolytic 47 6.3V | | |
| C112·128 | 50554030 | Electrolytic 47 6.3V | | |
| C106·116 | 50554230 | Electrolytic 100 6.3V | | |
| C122·129 | 50554050 | Electrolytic 10 16V | | |
| C104·114 | 50554050 | Electrolytic 10 16V | | |
| C125·126 | 50554050 | Electrolytic 10 16V | | |
| C115·130 | 50554170 | Electrolytic 100 25V | | |
| C105·121 | 50554170 | Electrolytic 100 25V | | |
| C109·119 | 50554510 | Electrolytic 10 25V | 50554040 10uF | |
| | | CAPACITORS continued | | |
| C101·111 | 50546010 | Tantalum 10 10V | | |
| C103·113 | 50548320 | Mylar 0.001 50V | | |
| C110·120 | 50548420 | Mylar 0.015 50V | | |
| C107·117 | 50543330 | High Q 22pF 50V | | |
| C123·127 | 50543420 | High Q 100pF 50V | | |
| C108·118 | 50543340 | High Q 330pF 50V | | |

# MIC AND PLAYBACK EQ. AMPLIFIER



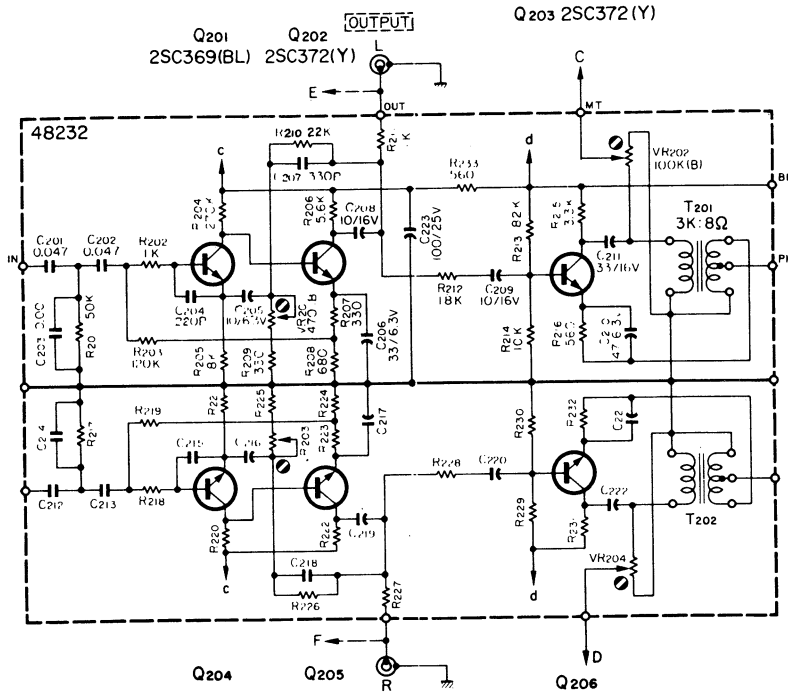



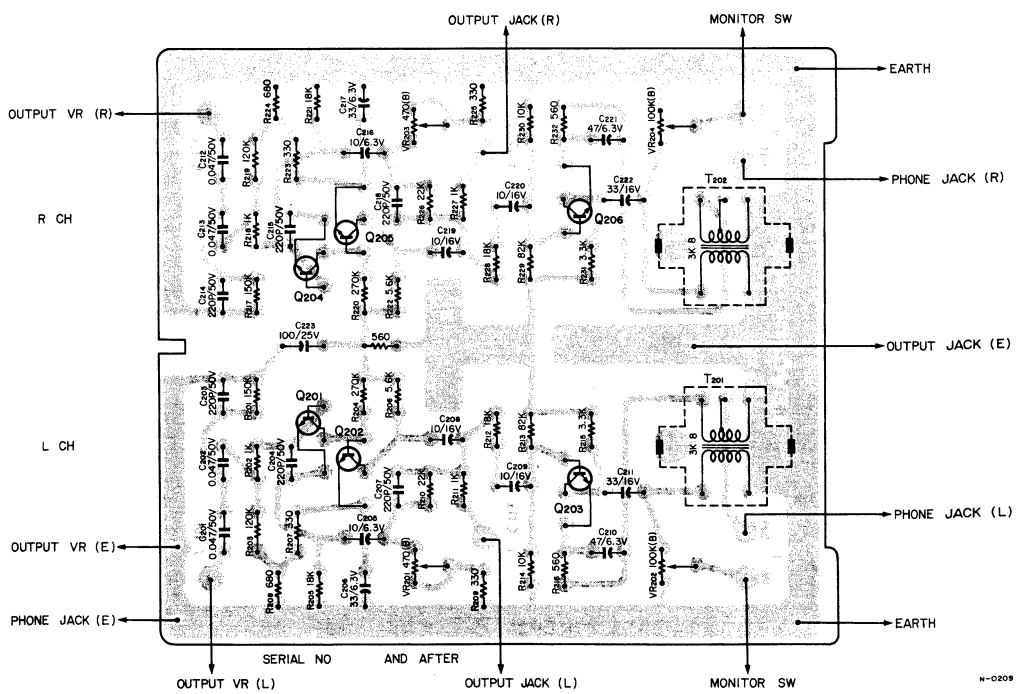
# LINE OUT AND PHONE AMPLIFIER

| CIRCUIT REF NO. | PARTS NO. | DESCRIPTION | 1ST | 2ND |
|---|---|---|---|---|
| | 50482322 | PC Board | 50482323 | |
| T201·202 | 50562140 | Output Xformer 3k ohms: 8 ohms | | |
| | | **SILICON TRANSISTORS** | | |
| Q201·204 | 50423300 | 2SC693(F/G) or 2SC369(BL) | | |
| Q202·205 | 50423310 | 2SC536(E/F) or 2SC372(Y) | | |
| Q203·206 | 50423310 | 2SC536(E/F) or 2SC372(Y) | | |
| | | **CARBON RESISTORS** | | |
| *ALL RESISTORS IN OHMS, 10% TOLERANCE, 1/4 WATTS UNLESS OTHERWISE NOTED* | | | | |
| R207·223 | 50515280 | 330 | | |
| R209·225 | 50515280 | 330 | 50515320 680 | 50515310 560 |
| R216 | 50515310 | 560 | | |
| R232·233 | 50515310 | 560 | | |
| R208·224 | 50515320 | 680 | | |
| R202·218 | 50515340 | 1k | | |
| R211·227 | 50515340 | 1k | | |
| R215·231 | 50515410 | 3.3k | | |
| R206·222 | 50515460 | 5.6k | | |
| R214·230 | 50515490 | 10k | | |
| R212·228 | 50515520 | 18k | | |
| R205·221 | 50515520 | 18k | | |
| R210·226 | 50515540 | 22k | | |
| R213·229 | 50515630 | 82k | | |
| R203·219 | 50515650 | 120k | | |
| R201·217 | 50515660 | 150k | 50515640 100k | |
| R204·220 | 50515270 | 270k | | |
| R107·124 | | | ADDED 50515500 12k | |
| *VR201·203 | 50533440 | Potentiometer 470 (B) 10ø (Std. only) | | |
| VR202·204 | 50533490 | Potentiometer 100k (B) 10ø | | |
| | | **CAPACITORS** | | |
| C205·216 | 50554250 | Electrolytic 10uF 6.3V | | |
| C206·217 | 50554240 | Electrolytic 33uF 6.3V | | |
| C210·221 | 50554030 | Electrolytic 47uF 6.3V | | |
| C209·220 | 50554050 | Electrolytic 10uF 16V | | |
| C211·222 | 50554260 | Electrolytic 33uF 16V | | |
| C223 | 50554170 | Electrolytic 100uF 25V | | |
| C202·213 | 50548270 | Mylar 0.047uF 50V | 50557030 Electrolytic 1uF 16V | |
| C201·212 | 50548270 | Mylar 0.047uF 50V | 50548460 0.056uF | |
| C203·214 | 50548320 | Mylar 0.001uF 50V | | |
| C207·218 | 50543340 | High Q 330pF 50V | | |
| C204·215 | 50543420 | High Q 220pF 50V | | |
| **2 Truck only* | | | | |
| VR201·203 | 50533640 | Potentiometer 2.2k ohms (B) | 50533450 1.5k | |

# LINE OUT AND PHONE AMPLIFIER

1ST EDITION



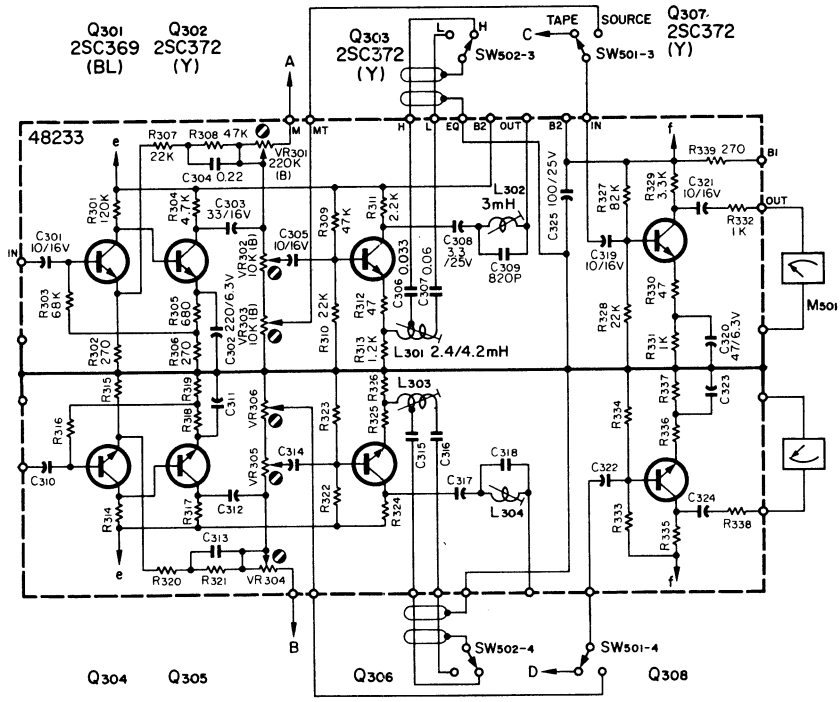
# METER AND REC. EQ. AMPLIFIER

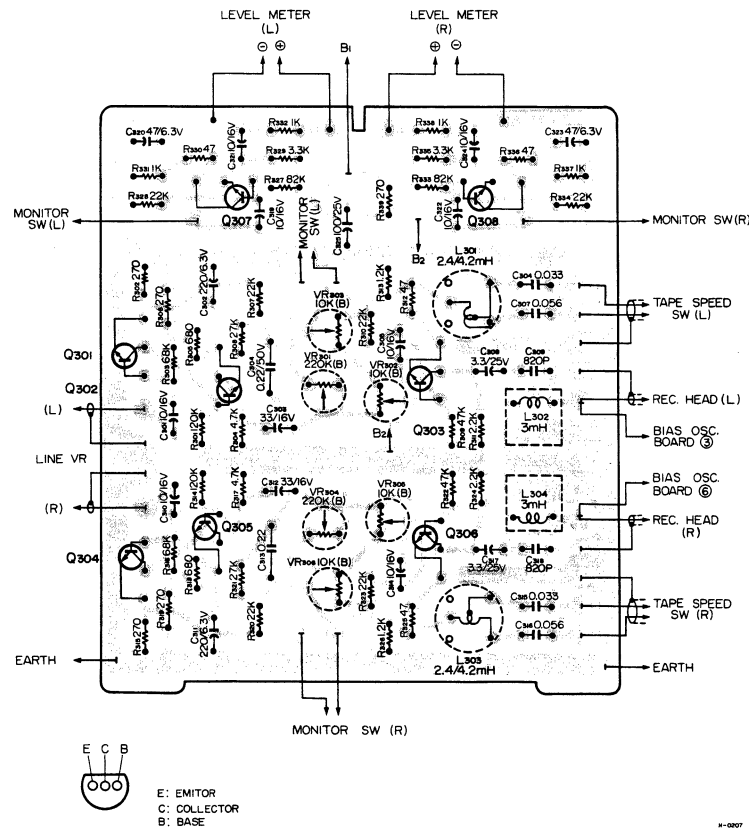
| CIRCUIT REF NO. | PARTS NO. | DESCRIPTION | 1ST | 2ND |
|---|---|---|---|---|
| | 50482331 | PC Board | 50482332 | |
| | | **COILS** | | |
| L302·304 | 50566300 | Trap Coil 3mH | | |
| L301·303 | 50566371 | REC EQ Coil 2.4/4.2mH | | |
| | | **SILICON TRANSISTORS** | | |
| Q301·304 | 50423300 | 2SC693(F/G) or 2SC369(BL) | | |
| Q302·306 | 50423310 | 2SC536(E/F) or 2SC372(Y) | | |
| Q303·305 | 50423310 | 2SC536(E/F) or 2SC372(Y) | | |
| Q307·308 | 50423310 | 2SC536(E/F) or 2SC372(Y) | | |
| | | **CARBON RESISTORS** | | |
| *ALL RESISTORS IN OHMS, 10% TOLERANCE, 1/4 WATTS UNLESS OTHERWISE NOTED* | | | | |
| R312·325 | 50515170 | 47 | | |
| R330·336 | 50515170 | 47 | 50513000 22 | |
| R302·306 | 50515270 | 270 | | |
| R319·339 | 50515270 | 270 | 50515240 150 | |
| R315 | 50515270 | 270 | | |
| R305·318 | 50515320 | 680 | | |
| R331·337 | 50515340 | 1k | | |
| R332·338 | 50515340 | 1k | | |
| R313·326 | 50515350 | 1.2k | | |
| R311·324 | 50515380 | 2.2k | | |
| R329·335 | 50515410 | 3.3k | | |
| R304·317 | 50515440 | 4.7 | | |
| R307·320 | 50515540 | 22k | 50515560 27k | |
| R310·328 | 50515540 | 22k | | |
| R323·334 | 50515540 | 22k | | |
| R308·321 | 50515590 | 47k | | |
| R309·322 | 50515590 | 47k | | |
| R303·316 | 50515620 | 68k | | |
| R327·333 | 50515630 | 82k | | |
| R301·314 | 50515650 | 120k | | |
| R341·340 | | | ADDED 50515470 6.8k | |
| R403 | 50515220 | 100 | | |
| R402·405 | 50514920 | 2.2k | | |
| R404 | 50514920 | 2.2k | | |
| R406·407 | 50514990 | 33 | | |
| R408 | 50514450 | 1.5k | | |
| R401 | 50525770 | Metal Oxide Resistor 680 2W | | |
| VR302·305 | 50533480 | Potentiometer 10k (B) 10ø | | |
| VR301·304 | 50533570 | Potentiometer 220k (B) 10ø | 50533670 330k | |

*CONTINUE TO FOLLOWING PAGE*

# METER AND REC. EQ. AMPLIFIER

1ST EDITION







E: EMITOR
C: COLLECTOR
B: BASE

# BIAS OSC. AND REC. RELAY -1-

| CIRCUIT REF NO. | PARTS NO. | DESCRIPTION | 1ST | 2ND |
|---|---|---|---|---|
| | 50482341 | PC Board | | |
| Q401·402 | 50423850 | Transistor 2SC971 | | |
| | | Heat Sink | | |
| T401 | 50563120 | Bias OSC Coil | | |
| K401 | 50610620 | Relay 4T DC 100V MY40 | | |
| | RESISTORS | | | |
| R403 | 50515220 | Carbon 100 ohms 1/4W | 50610730 MY4-0 | |
| R404 | 50514920 | Carbon 2.2k ohms 1/2W | | |
| R406·407 | 50514990 | Carbon 33 ohms 1/2W | | |
| R408 | 50514450 | Carbon 1.5k ohms 1/2W | | |
| R401 | 50525770 | Metal Oxide Resistor 68 ohms 2W | | |
| | CAPACITORS | | | |
| VC401·402 | 50547060 | Trimmer 30 - 210pF | | |
| C401 | 50554180 | Electrolytic 220uF 25V | | |
| C407 | 50555310 | Electrolytic 1uF 160V | | |
| C402·403 | 50548210 | Mylar 0.0022uF 150V | | |
| C404 | 50548210 | Mylar 0.0022uF 150V | | |
| C406 | 50548390 | Mylar 0.1uF 400V | | |
| C405 | 50544040 | Mica 0.0042uF 250V | | |

continued METER AND REC. EQ. AMPLIFIER

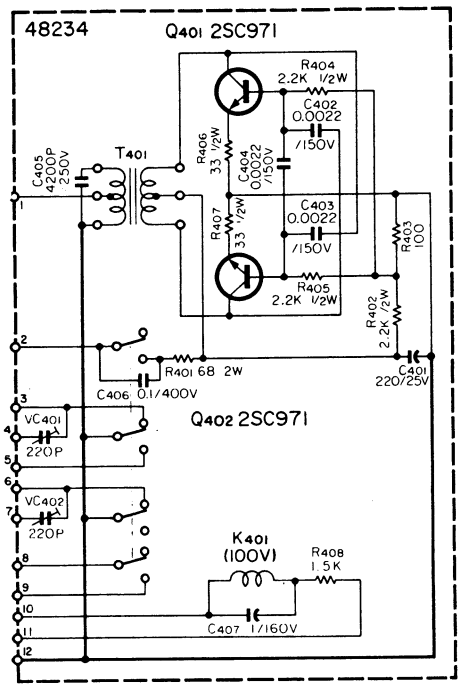
CAPACITORS

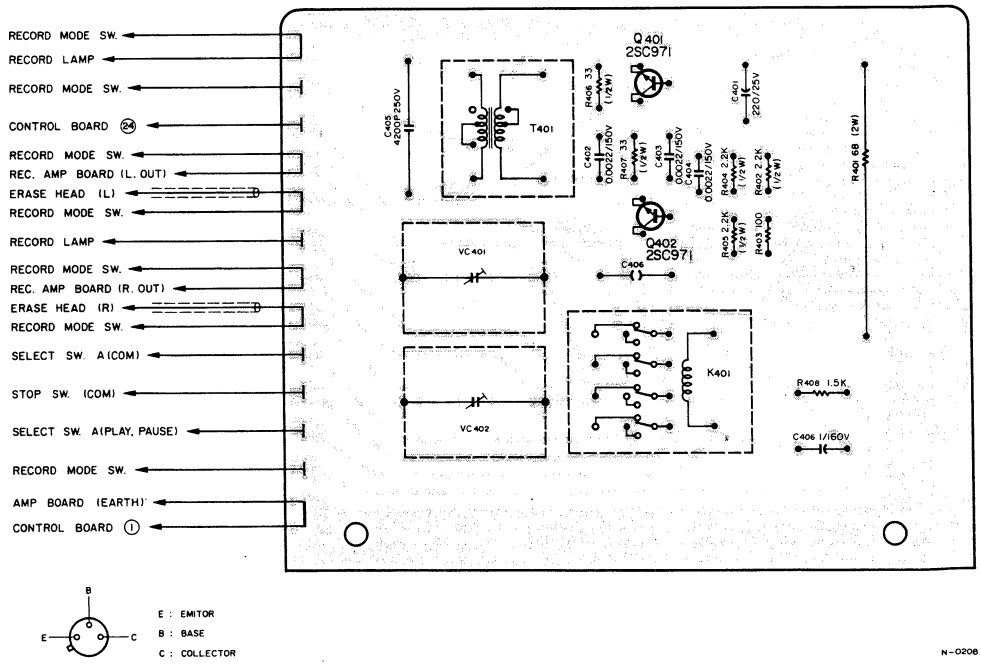
*ALL CAPACITORS IN MICRO FARADS UNLESS OTHERWISE NOTED*

| | | | | |
|---|---|---|---|---|
| C325 | 50554170 | Electrolytic 100 25V | | |
| C302·311 | 50554330 | Electrolytic 220 6.3V | | |
| C320·323 | 50554030 | Electrolytic 47 6.3V | | |
| C301·310 | 50554050 | Electrolytic 10 16V | | |
| C305·314 | 50554050 | Electrolytic 10 16V | | |
| C319·322 | 50554050 | Electrolytic 10 16V | 50557030 1uF | |
| C321·324 | 50554050 | Electrolytic 10pF 16V | 50557030 1uF | |
| C303·312 | 50554260 | Electrolytic 33 16V | | |
| C308·317 | 50554220 | Electrolytic 3.3 25V | | |
| C306·315 | 50548100 | Mylar 0.033 50V | 50548330 0.027uF | |
| C307·316 | 50548510 | Mylar 0.06 50V | 50548270 0.047uF | |
| C304·313 | 50548360 | Mylar 0.22 50V | 50548310 0.15uF | 50548040 0.1uF |
| C309·318 | 50543440 | Styrofoam 820pF 50V | | |
| C325·326 | | | ADDED 50548450 Mylar 0.0022uF 50V | |

# BIAS OSC. AND REC. RELAY -1-

1ST EDITION







N-0208

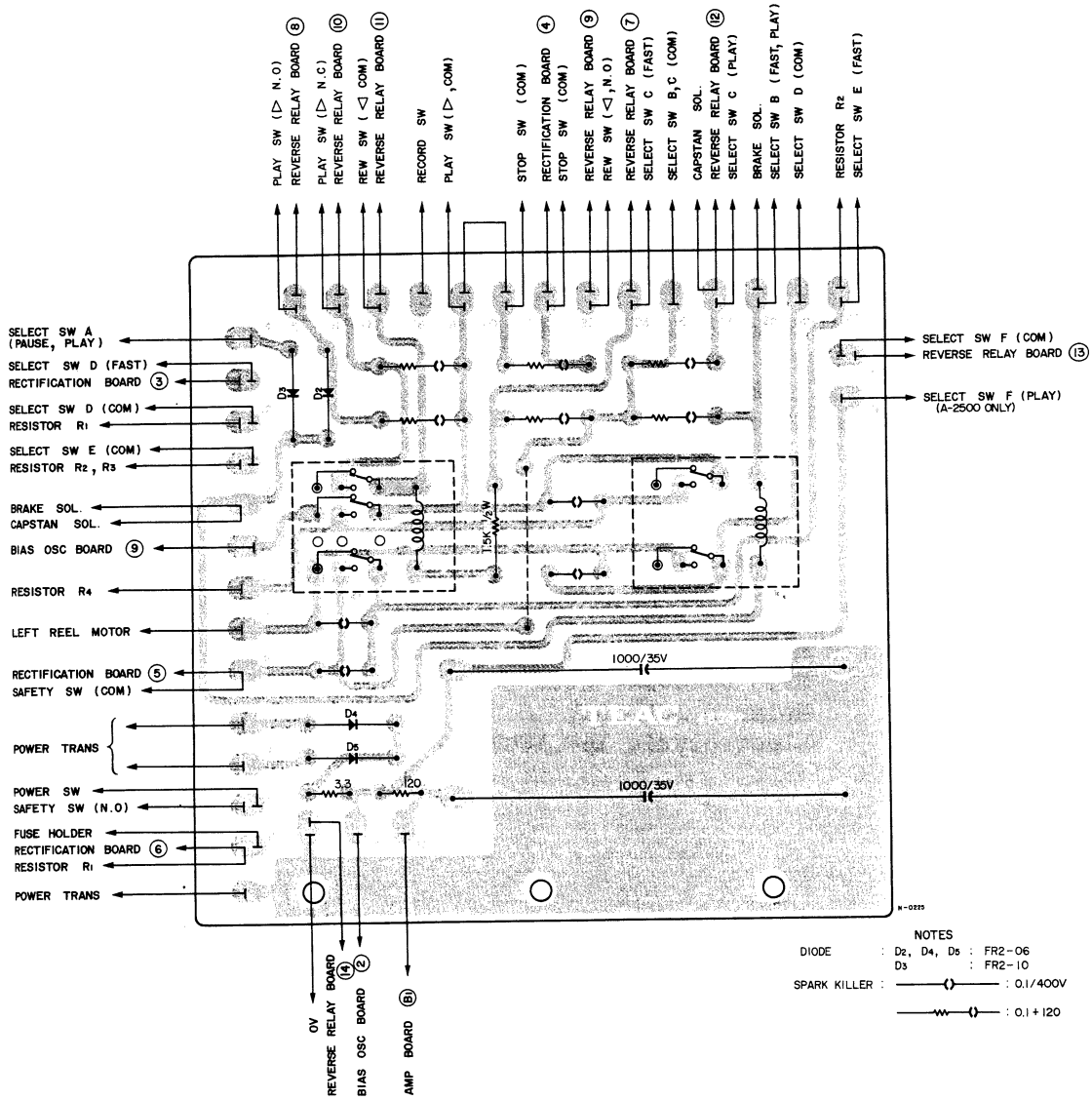
# CONTROL BOARD

| CIRCUIT REF NO. | PARTS NO. | DESCRIPTION | 1ST | 2ND |
|---|---|---|---|---|
| | 50482391 | PC Board | | |
| K1 | 50610730 | Relay 4T DC 100V MY4-0 | | |
| K2 | 50610750 | Relay 2T DC 100V MY2-0 | | |
| D2·4·5 | 50422360 | Diode FR2-06 | | |
| D3 | 50422380 | Diode FR2-10 | | |
| | 50233930 | PC Board Mount Angle B | | |
| | RESISTORS | | | |
| R5·11 | 50574860 | Carbon 1.5k ohms 1/2W | | |
| R6 | 50525440 | Wire Wound 3.3 ohms 1W | | |
| R7 | 50525890 | Wire Wound 120 ohms 1W | | |
| | CAPACITORS | | | |
| C2·3 | 50555110 | Electrolytic 1000uF 35V | | |
| C8 - 13 | 50529050 | Spark-Killer 0.1uF+120 ohms 400V | | |
| C21 - 24 | 50548390 | Mylar 0.1uF 400V | | |

# CONTROL BOARD

*SERIAL NO. 13000 AND AFTER*

2ND EDITION



# BIAS OSC. AND REC. RELAY -2-

| CIRCUIT REF NO. | PARTS NO. | DESCRIPTION | 1ST | 2ND |
|---|---|---|---|---|
| | 50482412 | PC Board | | |
| Q401·402 | 50423830 | Transistor 2SC971 | | |
| | | Heat Sink | | |
| T401 | 50563170 | Bias OSC Coil | | |
| K401 | 50610730 | Relay 4T DC 100V MY4-0 | | |
| | RESISTORS | | | |
| *ALL RESISTORS ARE FIXED CARBON FILM TYPE UNLESS OTHERWISE NOTED* | | | | |
| R401 | 50525900 | Metal Oxide Film R 100 ohms 2W | | |
| R403 | 50515220 | 100 ohms 1/4W | | |
| R404 | 50514920 | 2.2k ohms 1/2W | | |
| R406·407 | 50514990 | 33 ohms 1/2W | | |
| R408 | 50514450 | 1.5k ohms 1/2W | | |
| | CAPACITORS | | | |
| VC401·402 | 50547070 | Trimmer Max 80pF | | |
| C401 | 50554380 | Electrolytic 220uF 35V | | |
| C402·403 | 50548790 | Mylar 0.0022uF 150V | | |
| C404 | 50548530 | Mylar 0.0033uF 150V | | |
| C405 | 50544040 | Mica 0.0042uF 250V | | |
| C406 | 50548390 | Mylar 0.1uF 400V | | |
| C407 | 50555310 | Electrolytic 1uF 160V | | |

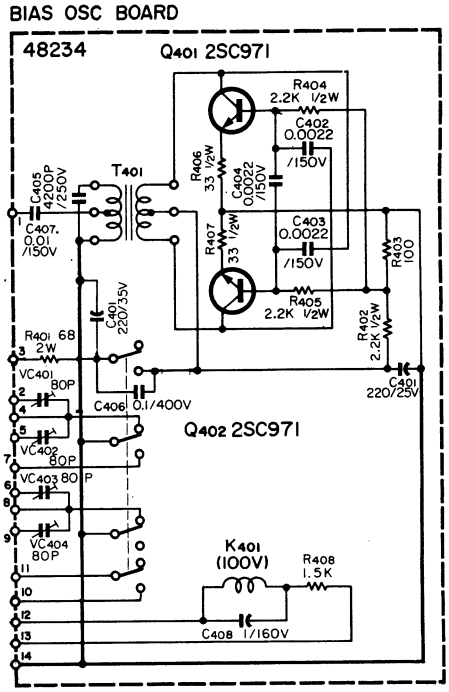
# BIAS OSC. AND REC. RELAY -2-

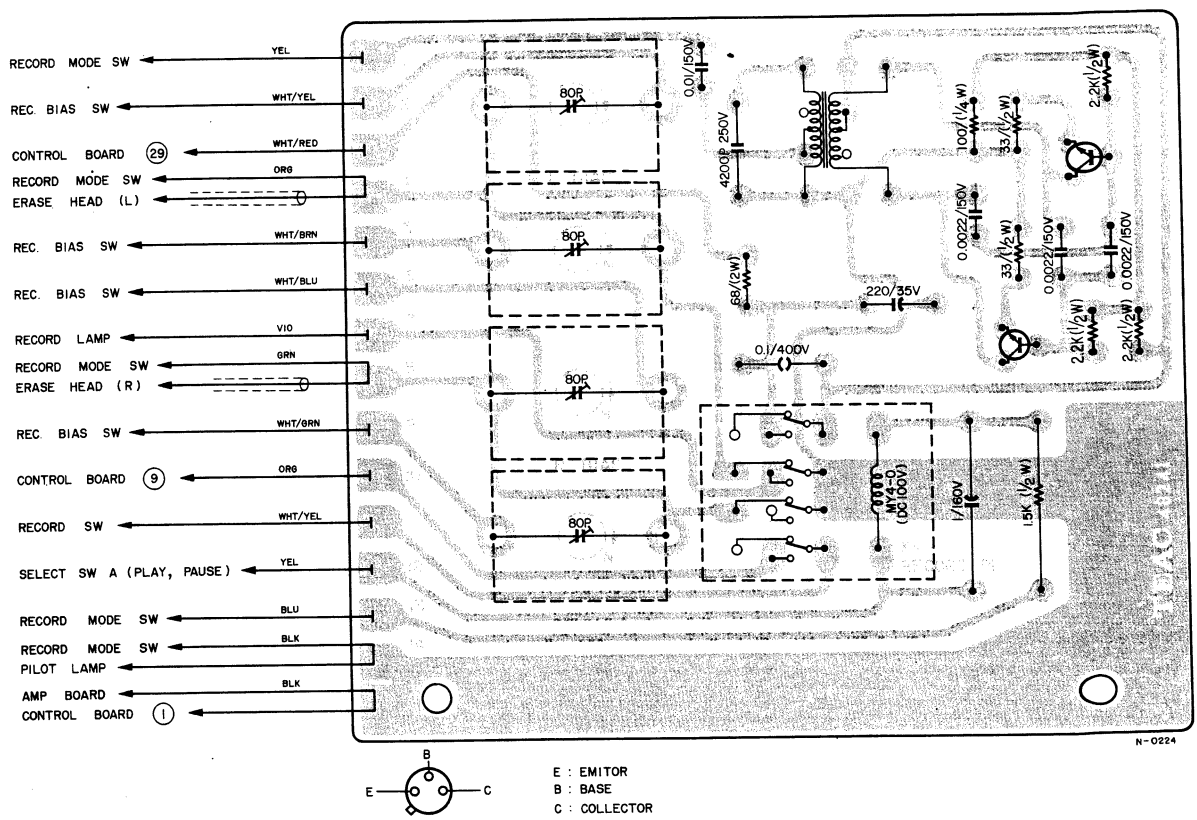
2ND EDITION

## VIEW FROM FOIL SIDE

*SERIAL No 13000 AND AFTER*

BIAS OSC BOARD







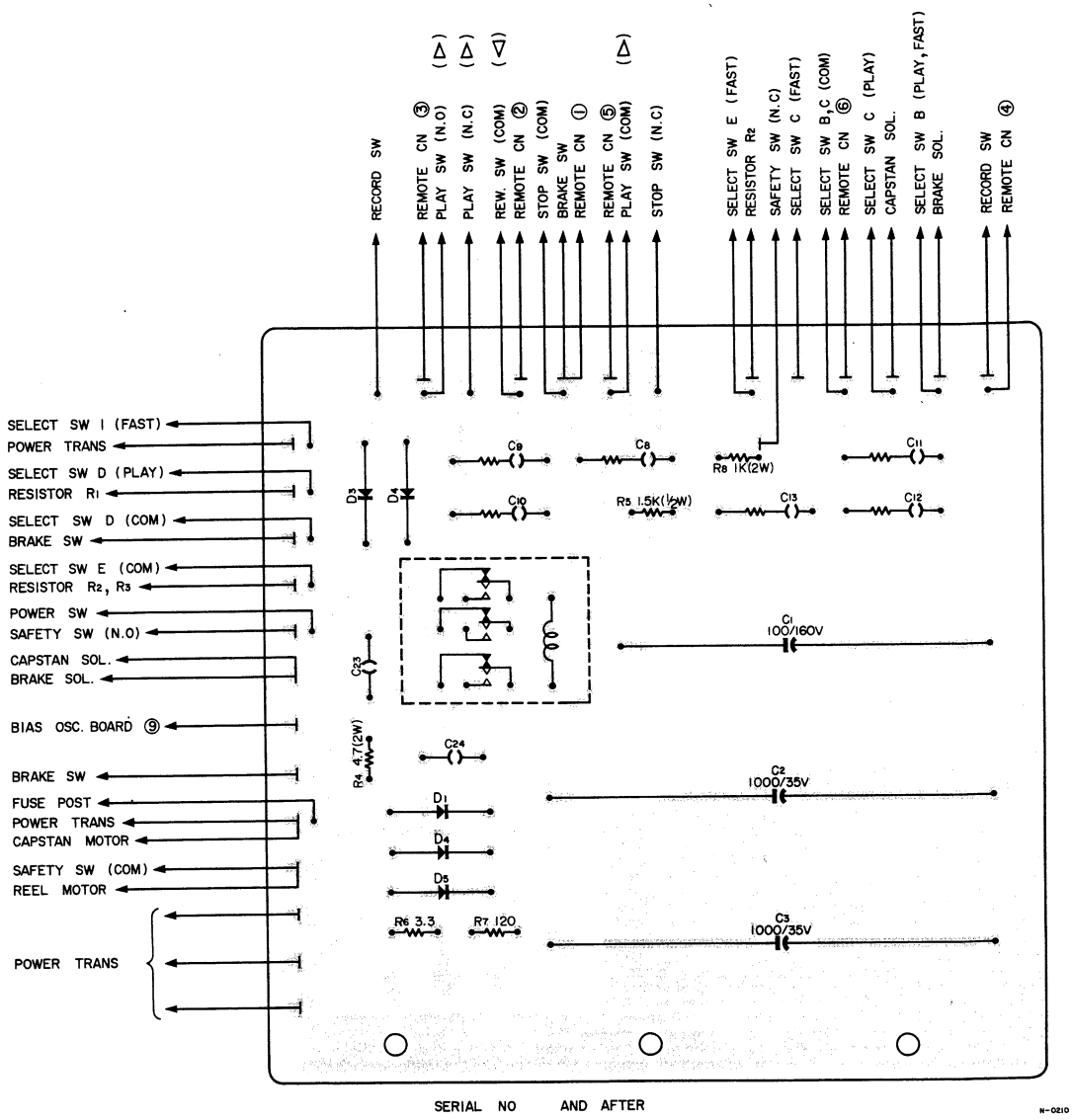
E : EMITOR
B : BASE
C : COLLECTOR

# REWIND RELAY AND RECTIFIERS

| CIRCUIT REF NO. | PARTS NO. | DESCRIPTION | 1ST | 2ND |
|---|---|---|---|---|
| | 50482370 | PC Board | | |
| K1 | 50610730 | Relay 4T DC 100V MY40 | | |
| D1·2 | 50422360 | Diode FR2-06(FR-1MD) | | |
| D4·5 | 50422360 | Diode FR2-06(FR-1MD) | | |
| D3 | 50422380 | Diode FR2-10(FR1-K) | | |
| | CARBON RESISTORS | | | |
| R4 | 50578260 | 4.7 ohms 2W | | |
| R5 | 50514450 | 1.5k ohms 1/2W | | |
| R6 | 50515030 | 3.3 ohms 1/4W | | |
| R7 | 50515230 | 120 ohms 1/4W | | |
| R8 | 50578820 | 1k ohms 2W | | |
| | CAPACITORS | | | |
| C2·3 | 50555110 | Electrolytic 1000uF 35V | | |
| C1 | 50555250 | Electrolytic 100uF 160V | | |
| C7 - 24 | 50548390 | Mylar 0.1uF 400V | | |
| C8·9 | 50529050 | Spark-Killer 0.1uF+120 ohms 400V | | |
| C10·11 | 50529050 | Spark-Killer 0.1uF+120 ohms 400V | | |
| C12·13 | 50529050 | Spark-Killer 0.1uF+120 ohms 400V | | |

# REWIND RELAY AND RECTIFIERS

1ST EDITION

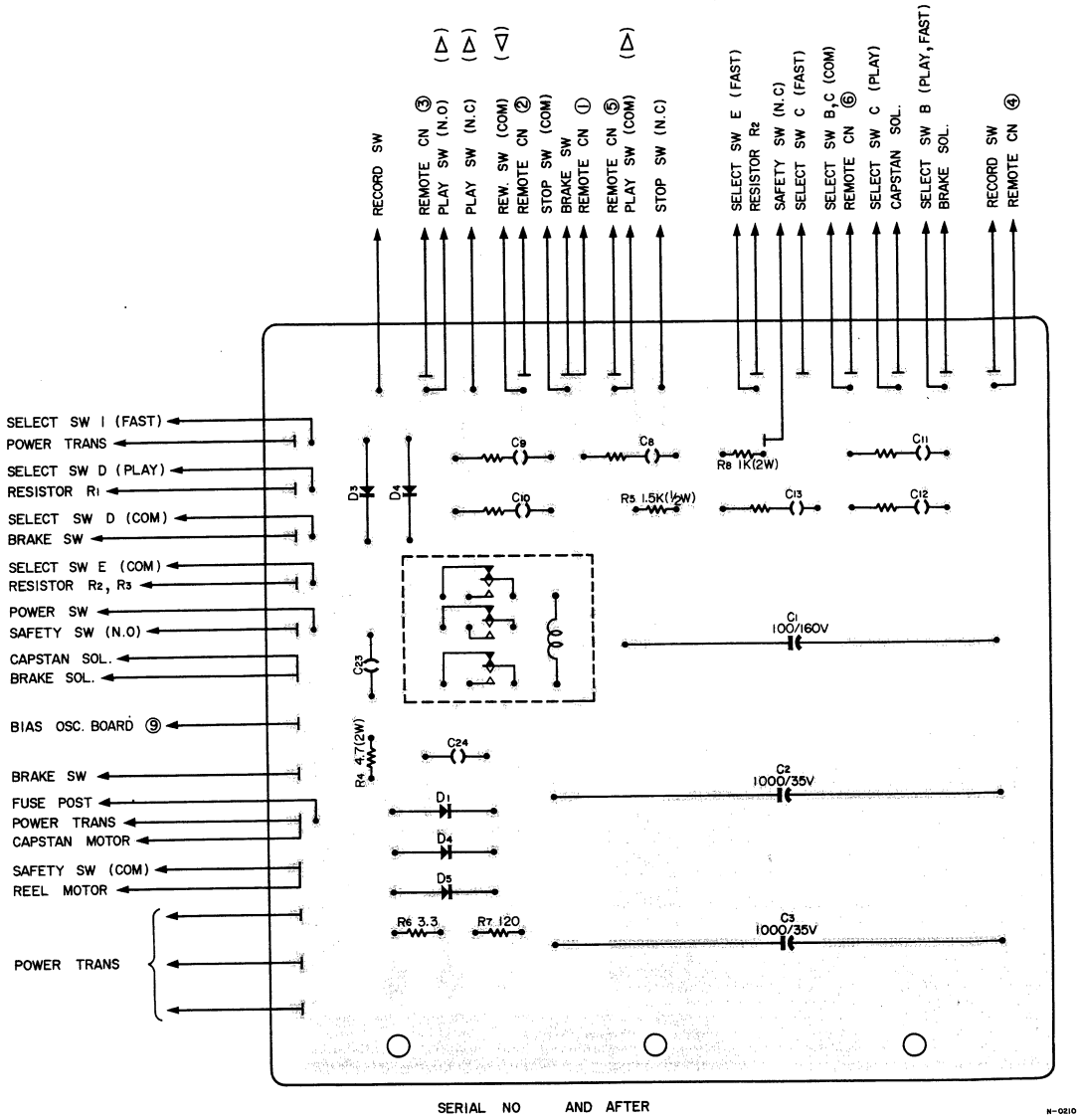



SERIAL NO AND AFTER

N-0210

# REWIND RELAY AND RECTIFIERS

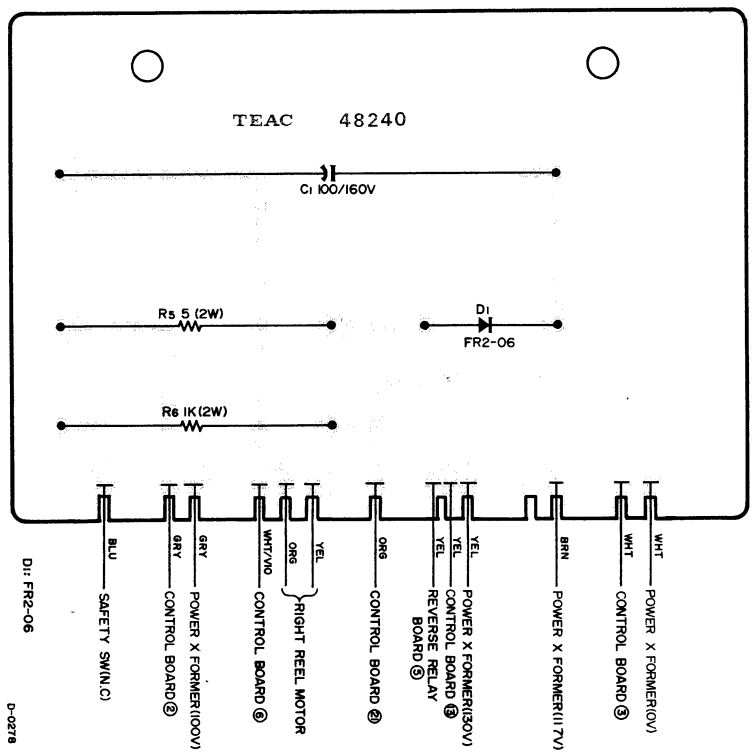
1ST EDITION




SERIAL NO AND AFTER

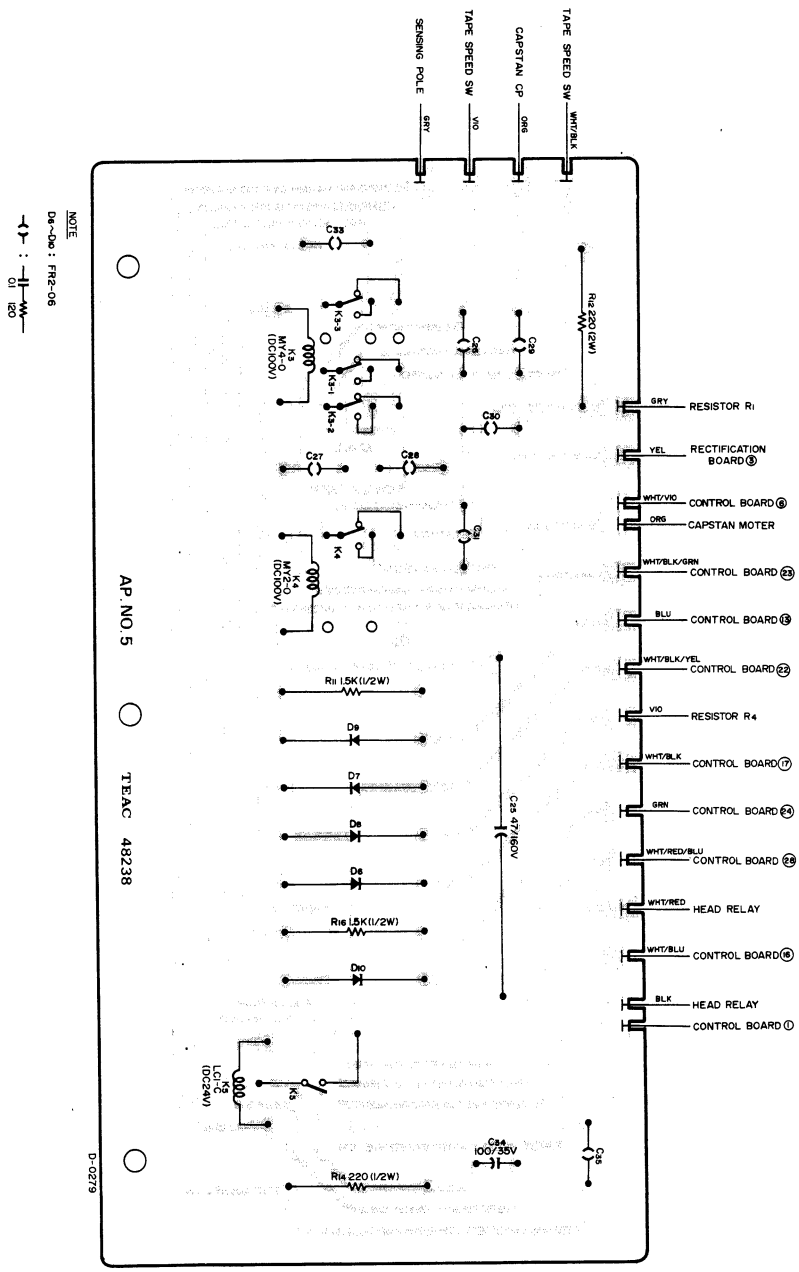
N-0210

# RECTIFIER




| CIRCUIT REF NO. | PARTS NO. | DESCRIPTION | 1ST | 2ND |
|---|---|---|---|---|
| | 50482400 | PC Board | | |
| C1 | 50555250 | Electrolytic 1000uF 160V | | |
| R4 | 50526030 | Carbon Resistor 5 ohms 2W | | |
| R8 | 50578820 | Carbon Resistor 1k ohms 2W | | |
| D1 | 50422360 | Diode FR2-06 | | |

# REVERSE RELAY




| CIRCUIT REF NO. | PARTS NO. | DESCRIPTION | 1ST | 2ND |
|---|---|---|---|---|
| | 50482381 | Reverse Relay PC Board | | |
| | 50610750 | Relay MY2-0 DC100V | | |
| | 50610730 | Relay MY4-0 DC100V | | |
| | 50610280 | Relay MRP-100E-02M | | |
| | 50574860 | Carbon Resistor 1.5k ohms 1/2W | | |
| | 50578580 | Carbon Resistor 100 ohms 2W | | |
| | 50555330 | Capacitor 47uF 160V | | |
| | 50529050 | Spark-Killer 0.1uF 400V | | |
| | 50422360 | Diode FR2-06 | | |

# 15 EXPLODED VIEW AND PART LIST

REPLACEMENT INFORMATION

Replacement part are available through your nearest TEAC dealer or directly from the TEAC office.
Changes are constantly being made to make TEAC products better and more reliable.
Therefore, when ordering parts, always include the following information:

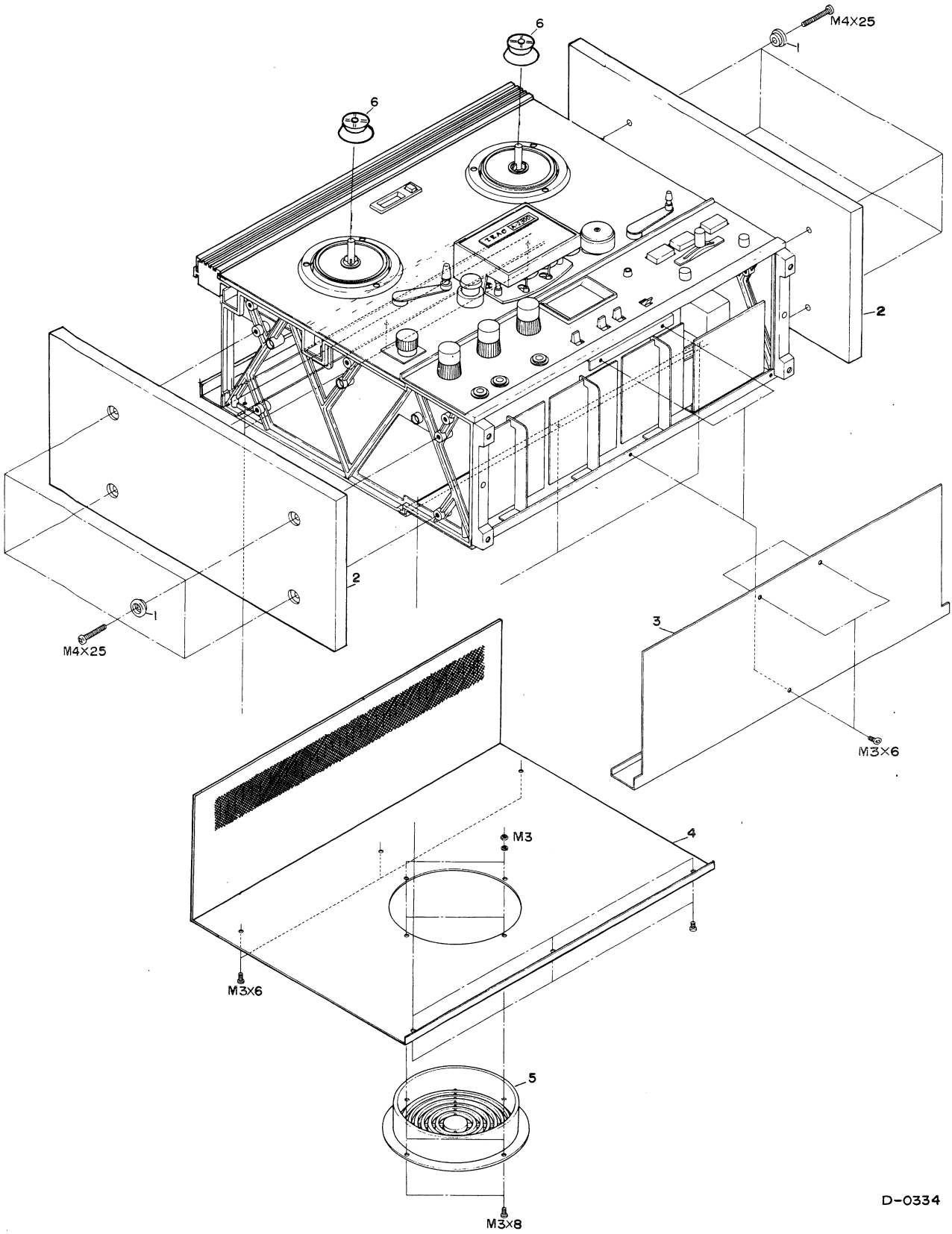
*MODEL. SERIAL NO. REF NO. PART NO. DESCRIPTION*

NOTE

The basic design of the A-2500 is highly similar to that of the A-2300, therefore information in this exploded view may be applied to the A-2500.

The A-2500 differs from the A-2300 in that it includes an automatic reverse system. Refer to last page of this section for additional parts to the A-2500.

# TRIM PARTS



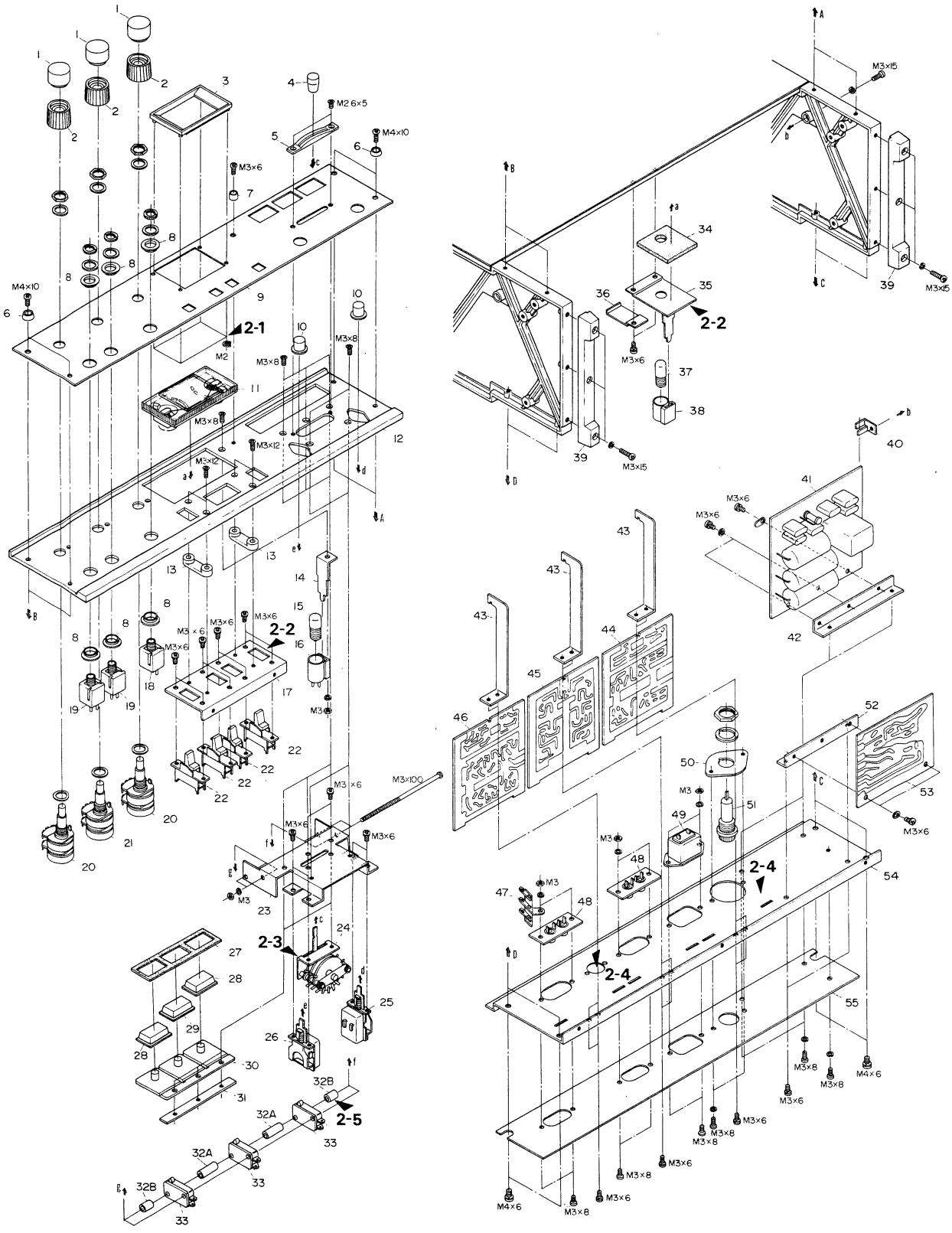
# TRIM PARTS

| REF NO. | PARTS NO. | DESCRIPTION | 1ST | 2ND | 3RD |
|---|---|---|---|---|---|
| 1-1 | 50296930 | Washer | | | |
| 1-2 | 50286230 | Wooden Plate (ST only) | 50286232 | | |
| 1-2 | 50941231 | Wooden Plate (BL only) | | | |
| 1-3 | 50296730 | Bottom Cover | | | |
| 1-4 | 50286630 | Rear Cover Assy (ST only) | | | |
| 1-4 | 50941240 | Rear Cover Assy (BL only) | 50941242 | | |
| 1-5 | 50276960 | Fan Cover | 50276961 | | |
| 1-6 | 50161580 | Reel Holder | | | |

NOTE
ST: Standard
BL: Black

DM: Domestic
EX: Export

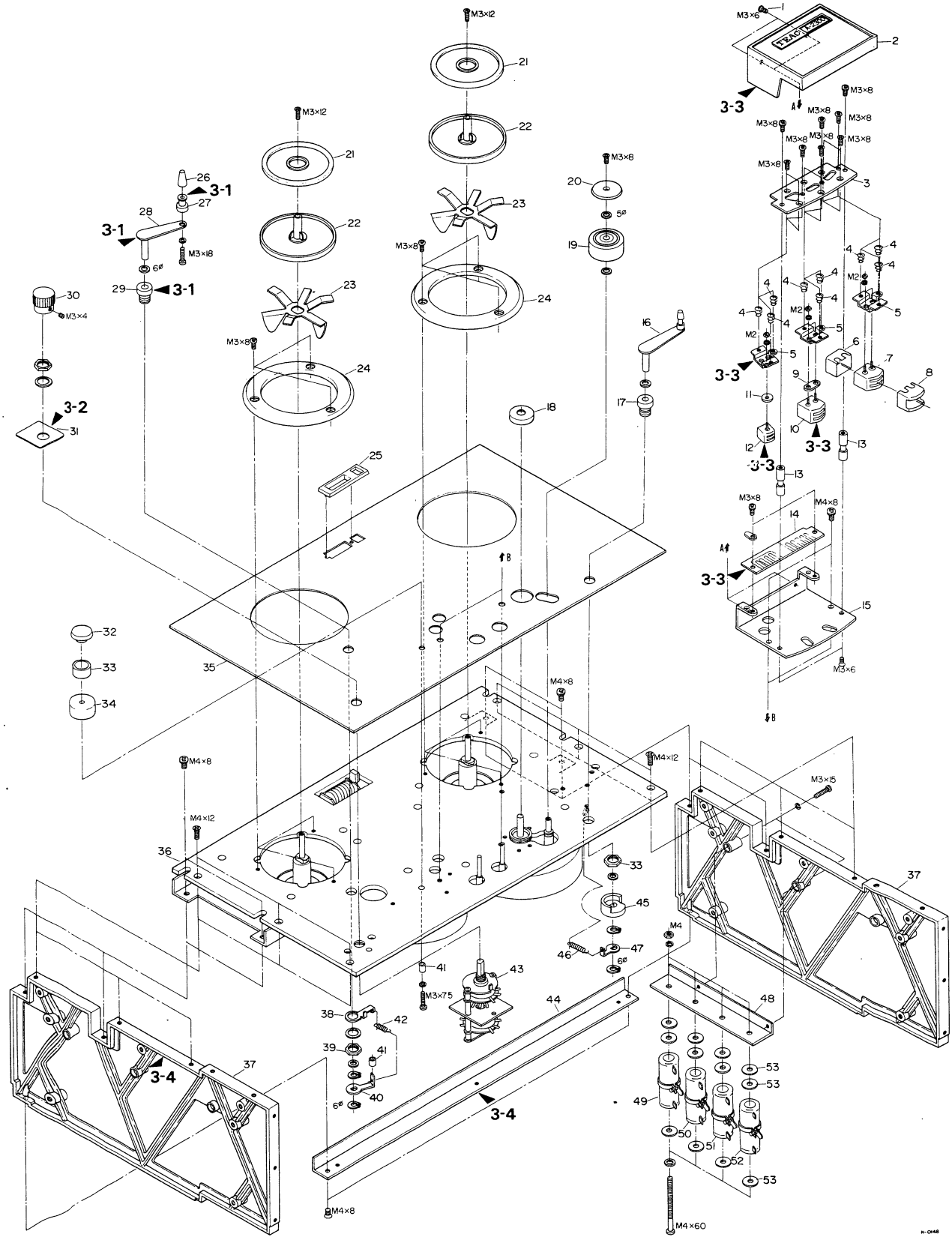
# CONTROL PANEL



# CONTROL PANEL

| REF NO. | PARTS NO. | DESCRIPTION | 1ST | 2ND | 3RD |
|---|---|---|---|---|---|
| 2- 1 | 50253080 | Knob (A) (ST only) | 50253081 | | |
| 2- 1 | 50253390 | Knob (Outer) (BL only) | | | |
| 2- 2 | 50253090 | Knob (B) (ST only) | | | |
| 2- 2 | 50253400 | Knob (Inner) (BL only) | | | |
| 2- 3 | 50583110 | Meter Escutcheon | 50583120 | | |
| 2- 4 | 50253140 | Lever Switch Button | 50253470 | | |
| 2- 5 | 50449900 | Lever Switch Cover | | | |
| 2- 6 | 50277110 | Trim Washer | 50277111 | | |
| 2- 7 | 50419060 | Pilot Holder | | | |
| 2- 8 | 50272610 | Insulate Washer | 50272620 | | |
| 2- 9 | 50112641 | AMP Trim Panel(ST only) | 50112642 | | |
| 2- 9 | 50113140 | AMP Trim Panel(BL only) | | | |
| 2-10 | 50252190 | Push Button | | | |
| 2-11 | 50581200 | VU Meter | | | |
| 2-12 | 50112631 | AMP Panel | 50112633 | | |
| 2-13 | 50277060 | Switch Base | | | |
| 2-14 | 50415120 | Lamp Holder | | | |
| 2-15 | 50414131 | 8V Pilot Lamp | | | |
| 2-16 | 50415030 | Pilot Lamp Socket | 50419050 | | |
| 2-17 | 50276900 | SW Mount Plate Assy | 50277130 | 50234890 | |
| 2-18 | 50432440 | 3P Jack | | | |
| 2-19 | 50430230 | Single Jack | | | |
| 2-20 | 50537100 | Double Potentiometer | | | |
| 2-21 | 50537090 | Double Potentiometer | | | |
| 2-22 | 50447120 | Lever Switch | | | |
| 2-23 | 50277030 | Control Base Plate | 50277780 | | |
| 2-24 | 50442350 | Rotary Switch (Lever) | | | |
| 2-25 | 50443210 | Push Switch (Lock) | | | |
| 2-26 | 50443410 | Push Switch (Non Lock) | | | |
| 2-27 | 50277240 | Rubber Plate Collar | | | |
| 2-28 | 50252190 | Operation Button | 50253210 | | |
| 2-29 | 50252450 | Operation Button Stop | 50253200 | | |
| 2-30 | 50253110 | Push Button Base | 50253113 | | |
| 2-31 | 50277010 | Control Plate | | | |
| 2-32 | 50241120 | Control Collar | | | |
| 2-32 | 50241130 | Control Collar | 50277540 | | |
| 2-33 | | Micro Switch | | | |
| 2-34 | 50277070 | Cushion Plate | 50279560 | | |
| 2-35 | 50233770 | Meter Stop Plate | | | |
| 2-36 | 50152452 | Lifter Receive Angle | | | |
| 2-37 | 50414131 | 8V Pilot Lamp | | | |
| 2-38 | 50415030 | Pilot Lamp Socket | | | |
| 2-39 | 50276980 | Case Leg | | | |
| 2-40 | 50277000 | PC Board Fixed Angle | DISCONTINUED | | |
| 2-41 | | Control PC Board Assy | | | |
| 2-42 | 50276850 | L Bracket (B) | | | |
| 2-43 | 50233760 | AMP Stop Plate | | | |
| 2-44 | | REC Meter AMP PC Board Assy | | | |
| 2-45 | | Line Phone AMP PC Board Assy | | | |
| 2-46 | | Playback Mic AMP PC Board Assy | | | |
| 2-47 | | Terminal Strip 1L-2P | | | |
| 2-48 | 50434630 | Double Pin Jacks | 50434631 | | |
| 2-49 | 50431050 | AC Socket | | | |
| 2-50 | 50419010 | Fuse Post Adaptor | | | |
| 2-51 | 50412170 | Fuse Holder | | | |
| 2-52 | 50276840 | L Bracket (A) | | | |
| 2-53 | | Bias Oscillator PC Board Assy | | | |
| 2-54 | 50233730 | AMP Chassis | 50233732 | 50234700 | |
| 2-55 | 50263100 | Connector Plate (DM) | 50263103 | | |
| 2-55 | 50263140 | Connector Plate (EX) | 50263142 | 50264620 | |

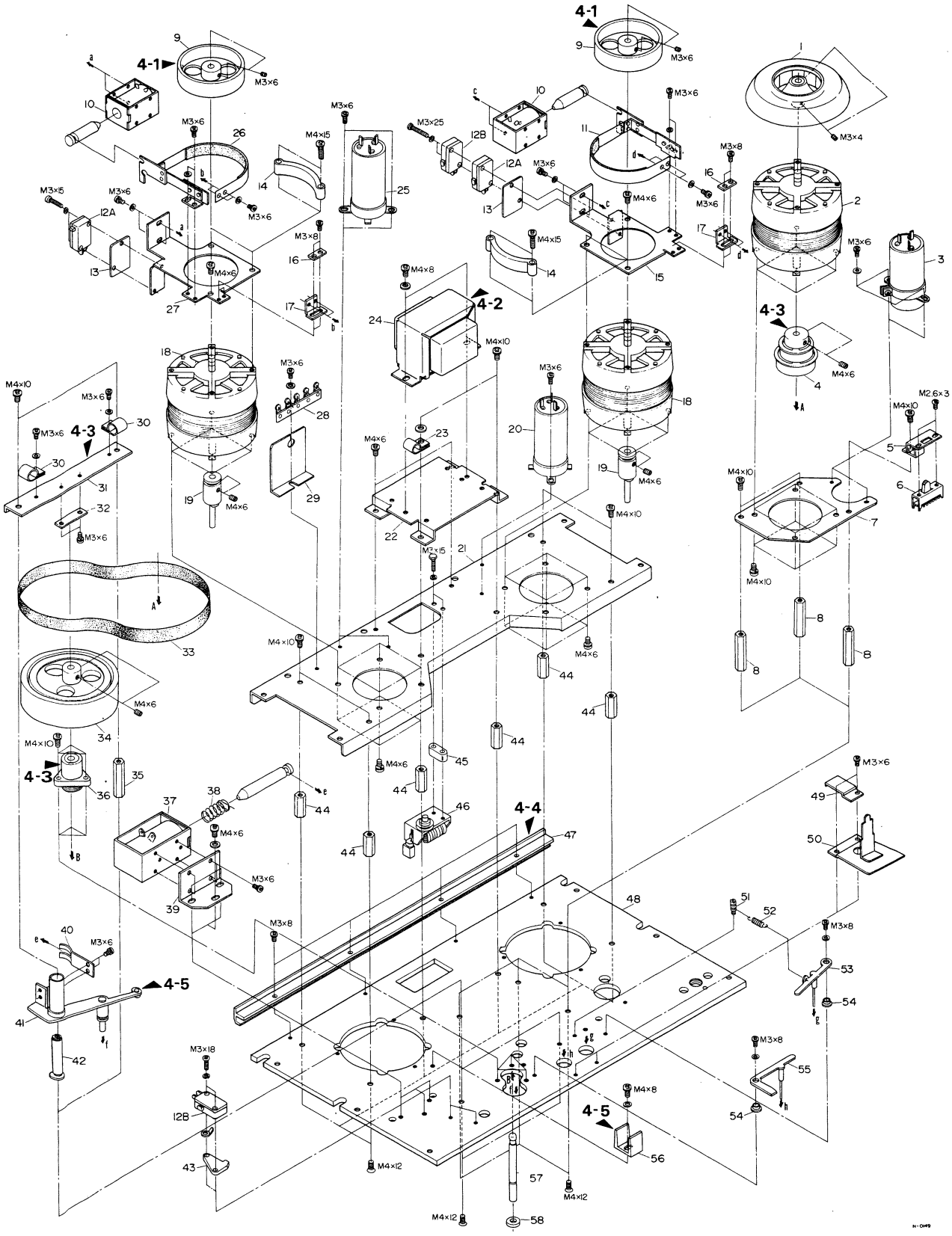
# ABOVE MAIN CHASSIS



# ABOVE MAIN CHASSIS

| REF NO. | PARTS NO. | DESCRIPTION | 1ST | 2ND | 3RD |
|---|---|---|---|---|---|
| 3- 1 | 50210270 | Housing Stop Screw | | | |
| 3- 2 | 50134340 | Head Housing | 50134341 | | |
| 3- 3 | 50134400 | Head Angle Plate | | | |
| 3- 4 | 50220500 | Spring | | | |
| 3- 5 | 50134370 | Head Mount Plate | | | |
| 3- 6 | 50133900 | Shield Case (B) | | | |
| 3- 7 | 50669040 | Playback Head | 50669041 | | |
| 3- 8 | 50133891 | Shield Case (A) | | | |
| 3- 9 | 50134390 | REC Head Spacer | | | |
| 3-10 | 50666041 | REC Head | | | |
| 3-11 | 50134380 | Erase Head Spacer | | | |
| 3-12 | 50663030 | Erase Head | | | |
| 3-13 | 50182670 | Guide Pin | 50182672 | | |
| 3-14 | 50482352 | PC Board (Head) | | | |
| 3-15 | 50134350 | Head Plate | | | |
| 3-16 | 50180430 | Tension Arm Assy (Right) | 50180431 | | |
| 3-17 | 50182700 | Arm Holder | 50182701 | | |
| 3-18 | 50123970 | Metalized Cap | 50123971 | | |
| 3-19 | 50141750 | Pinch Roller | | | |
| 3-20 | 50141760 | Pinch Roller Cap | | | |
| 3-21 | 50820350 | Reel Table Cover | | | |
| 3-22 | 50161920 | Reel Table | 50161981 | | |
| 3-23 | 50221140 | Height Adj. Spring (A) | 50221170 | 50221180 Coiled Spring | |
| 3-24 | 50161940 | Reel Protector | | | |
| 3-25 | 50277020 | Counter Escutcheon | | | |
| 3-26 | 50134360 | Guide Cap | | | |
| 3-27 | 50182690 | Guide Pin (B) | | | |
| 3-28 | 50180440 | Tension Arm Assy (Left) | 50180442 | | |
| 3-29 | 50182700 | Arm Holder (A) | 50182701 | | |
| 3-30 | 50253100 | Knob (C) (ST only) | 50253102 | | |
| 3-30 | 50253390 | Knob (Outer) (BL only) | | | |
| 3-31 | 50263090 | Name Plate | 50263170 | | |
| 3-32 | 50123910 | Guide Ring Cap | | | |
| 3-33 | 50123930 | Guide Ring | | | |
| 3-34 | 50123920 | Guide Ring Base | | | |
| 3-35 | 50112660 | Face Panel | 50112662 | | |
| 3-36 | 50112670 | Top Panel | 50112672 | | |
| 3-37 | 50112710 | Side Frame | 50112712 | | |
| 3-38 | 50276870 | Spring Hanger | | | |
| 3-39 | 50276920 | 9ø Nut | | | |
| 3-40 | 50182750 | Tension Arm Stopper | | | |
| 3-41 | 50276990 | Rubber Collar | | | |
| 3-42 | 50221110 | Rubber Collar | DISCONTINUED | | |
| 3-43 | 50442360 | Rotary Switch | | | |
| 3-44 | 50286220 | Angle (ST only) | 50286222 | | |
| 3-44 | 50277310 | Angle | | | |
| 3-45 | 50182740 | Tension Arm Drum | 50182742 | 50182990 | |
| 3-46 | 50221120 | Spring (C) | 50221121 | | |
| 3-47 | 50276860 | Spring Hang (Right) | | | |
| 3-48 | 50276860 | Resistor Mount Plate | 50276890 | 50277750 | |
| 3-49 | 50524320 | Wire Wound Resistor, 500 ohms 20HA | 50524321 | | |
| 3-50 | 50522190 | Wire Wound Resistor, 200 ohms 20HA | | | |
| 3-51 | 50524310 | Wire Wound Resistor, 150 ohms 20HA | 50522211 50 ohms 20HA | | |
| 3-52 | 50524200 | Wire Wound Resistor, 100 ohms 20HA | 50524201 | | |

# BELOW MAIN CHASSIS

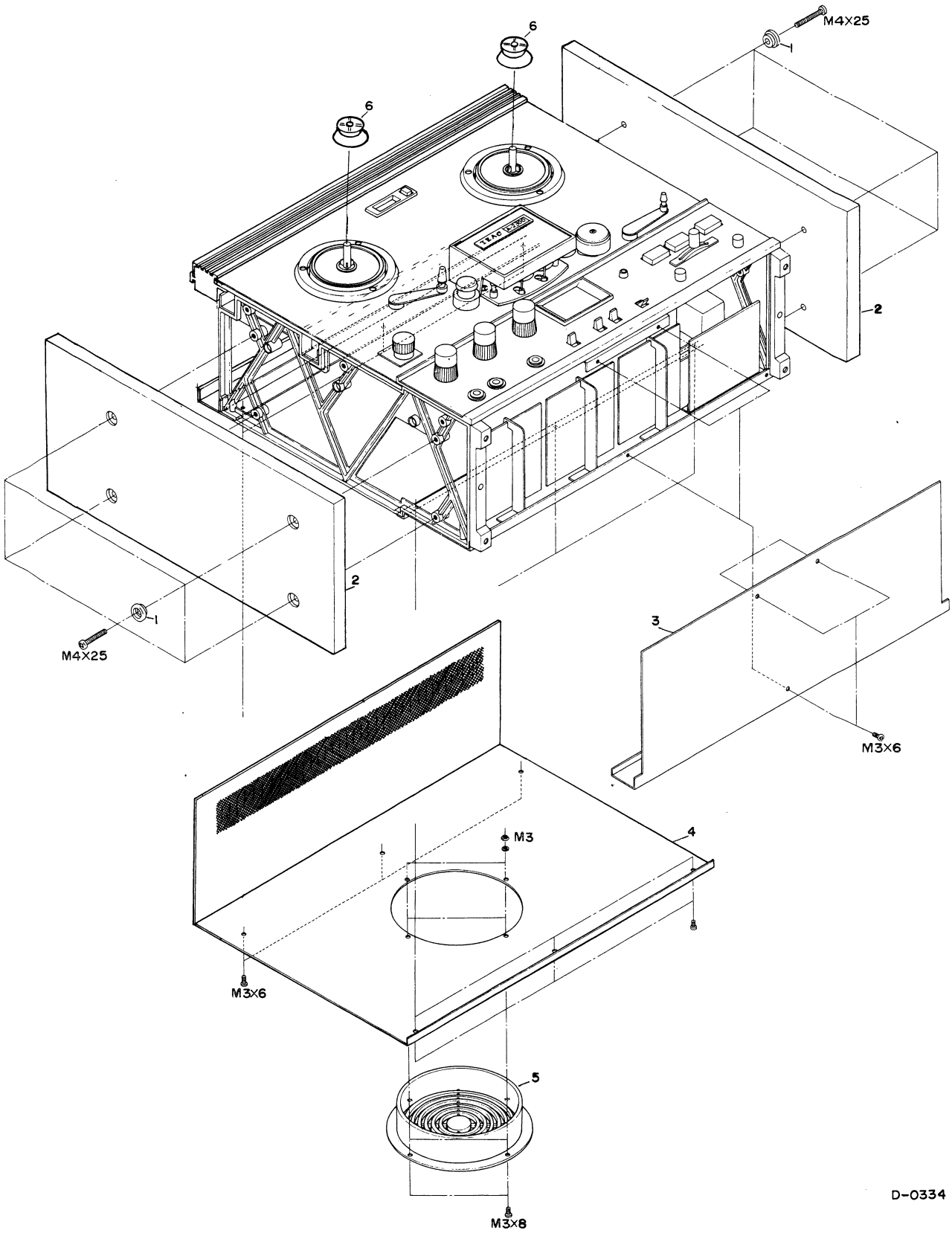


# BELOW MAIN CHASSIS

| REF NO. | PARTS NO. | DESCRIPTION | 1ST | 2ND | 3RD |
|---|---|---|---|---|---|
| 4- 1 | 50123980 | Fan | | | |
| 4- 2 | 50701190 | Capstan Motor | 50701342 | | |
| 4- 3 | 50545650 | MP Cap, 2uF+0.8uF 250V | | | |
| 4- 4 | 50123840 | Motor Pulley | 50124002 | | |
| 4- 5 | 50276910 | Slide Switch Mount Plate | | | |
| 4- 6 | 50444170 | Slide Switch | | | |
| 4- 7 | 50123870 | Motor Mount Plate | | | |
| 4- 8 | 50123850 | Pole (Capstan) | | | |
| 4- 9 | 50172540 | Brake Drum | 50172631 | 50172831 | |
| 4-10 | 50616370 | Solenoid | | | |
| 4-11 | 50170170 | Brake Belt Assy (A) | 50170181 | | |
| 4-12 | 50446100 | Micro Switch | 50446180 | | |
| 4-12 | 50446130 | Micro Switch | | | |
| 4-13 | 50271790 | Insulate Panel | | | |
| 4-14 | 50172550 | Brake Receiver | | | |
| 4-15 | 50172600 | Brake Mount Plate (A) | 50172602 | | |
| 4-16 | 50170150 | Belt Pressure | | | |
| 4-17 | 50170160 | Belt Mount Angle | | | |
| 4-18 | 50702251 | Reel Motor | | | |
| 4-19 | 50161930 | Reel Shaft | | | |
| 4-20 | 50545660 | MP Cap, 3uF+1uF 250V | | | |
| 4-21 | 50233740 | Motor Chassis | 50233741 | 50233921 | |
| 4-22 | 50233750 | X former Mount Plate | | | |
| 4-23 | 50276280 | Cord Pressure (Large) | | | |
| 4-24 | 50561700 | Power Supply X former | 50561701 | | |
| 4-25 | 50545660 | MP Capacitor | | | |
| 4-26 | 50170140 | Brake Belt Assy | 50170143 | | |
| 4-27 | 50172610 | Brake Mount Plate (B) | 50172612 | | |
| 4-28 | | Terminal Strip 1L4P | 50482400 | Rectifier PC Board | |
| 4-29 | 50276880 | Insulate Plate | | | |
| 4-30 | 50276290 | Thrust Angle | | | |
| 4-31 | 50277050 | Thrust Angle | 50277151 | | |
| 4-32 | 50272851 | Thrust Plate | 50277230 | | |
| 4-33 | 50123830 | Capstan Belt | | | |
| 4-34 | 50123800 | Flywheel | 50123801 | | |
| 4-35 | 50123860 | Pole (Flywheel) | | | |
| 4-36 | 50120200 | Metallized Holder Assy | 50120211 | 50123821 | |
| 4-37 | 50616340 | Solenoid | | | |
| 4-38 | 50221130 | Return Spring | 50221131 | 50220441 | |
| 4-39 | 50277080 | Solenoid Mount Plate | | | |
| 4-40 | 50221150 | Pressure Spring | 50221151 | | |
| 4-41 | 50140230 | Pinch Roller Arm Assy | 50140235 | | |
| 4-42 | 50141770 | Roller Arm Shaft | 50141820 | | |
| 4-43 | 50182730 | Tension Arm Limiter | | | |
| 4-44 | 50161950 | Pole (Reel Motor) | | | |
| 4-45 | 50276950 | Counter Spacer | | | |
| 4-46 | 50585090 | Tape Counter | | | |
| 4-47 | 50112680 | Sush (ST only) | 50112682 | | |
| 4-47 | 50113001 | Top Grille (BL only) | | | |
| 4-47 | 50112980 | Top Grille (2T only) | | | |
| 4-48 | 50112670 | Top Panel | 50112671 | | |
| 4-49 | 50152450 | Lifter Angle | | | |
| 4-50 | 50233770 | Meter Stop Plate | | | |
| 4-51 | 50123140 | Spring Angle Pin | | | |
| 4-52 | 50221100 | Spring (A) | | | |
| 4-53 | 50150250 | Lifter Arm (B) Assy | 50150251 | | |
| 4-54 | 50152500 | Lifter Arm Shaft | 50152501 | | |
| 4-55 | 50150240 | Lifter Arm (A) Assy | 50150241 | | |
| 4-56 | 50141800 | Pinch Roller Stopper | 50141801 | 50141841 | |
| 4-57 | 50123691 | Capstan Shaft | | | |
| 4-58 | 50123900 | Oil Seal | | | |

EXPLODED VIEW
A-2500

# TRIM PARTS

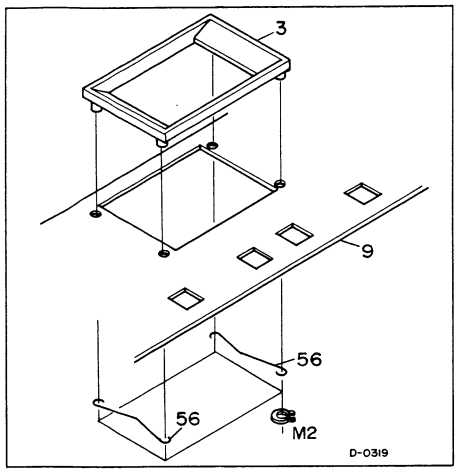


# TRIM PARTS

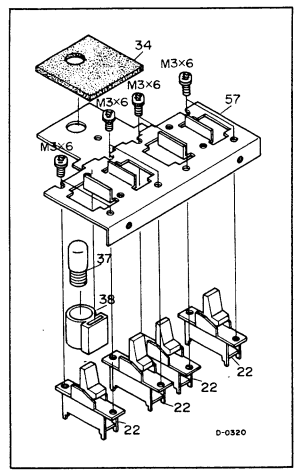
| REF NO. | PARTS NO. | DESCRIPTION | 1ST | 2ND |
|---|---|---|---|---|
| 1-1 | 50296930 | Washer | | |
| 1-2 | 50941230 | Wooden Plate | | |
| 1-3 | 50296730 | Bottom Cover | | |
| 1-4 | 50941242 | Rear Cover Assy | | |
| 1-4 | 50941251 | Rear Cover | | |
| 1-4 | 50941260 | Nylon Net | | |
| 1-5 | 50276961 | Fan Cover | | |
| 1-5 | 50941270 | Fan Cover Plate | | |
| 1-6 | 50161580 | Reel Holder | | |

# CONTROL PANEL

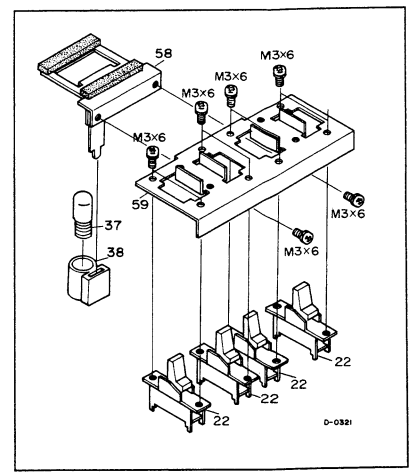
## PARTIAL



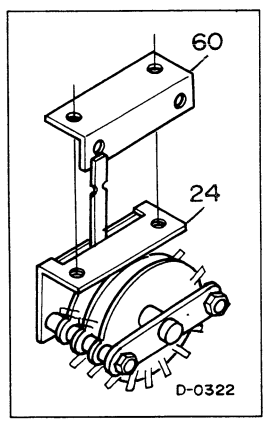

2-1



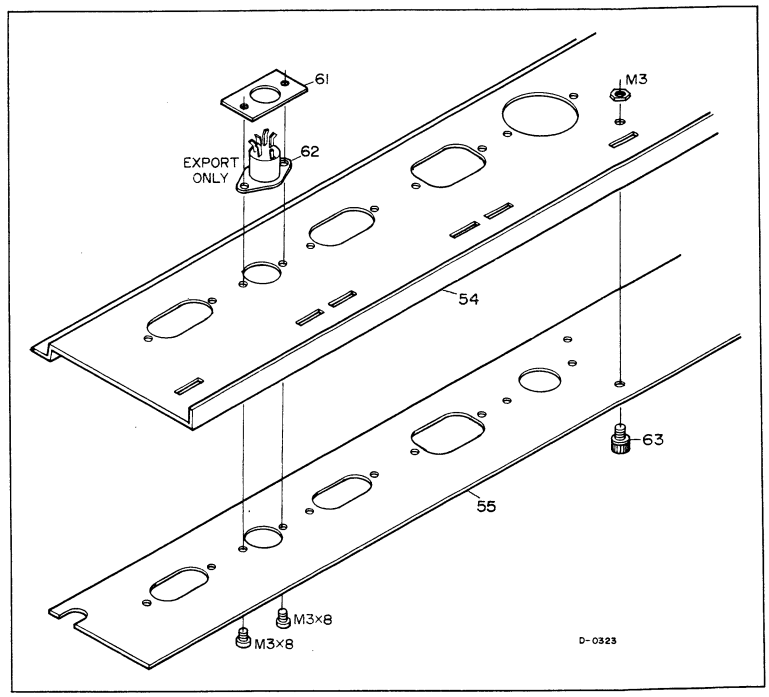

2-2-1



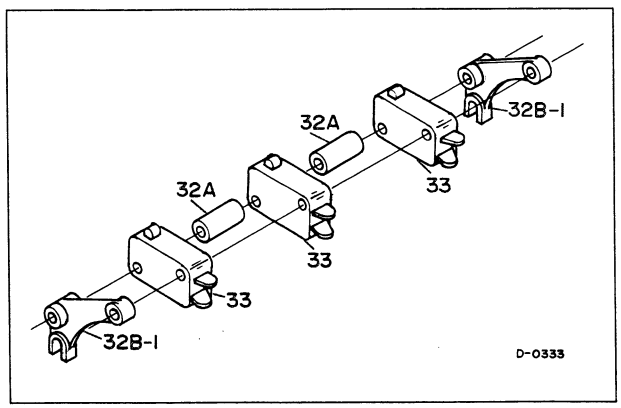

2-2-2




2-3




2-4



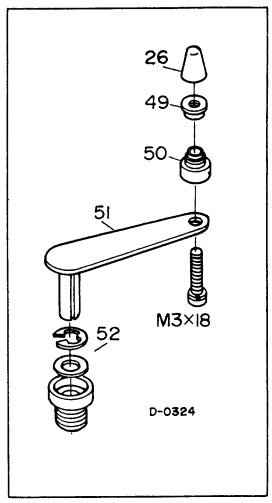

2-5

# CONTROL PANEL

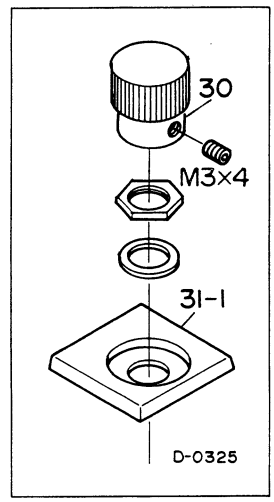
## PARTIAL

| REF NO. | PARTS NO. | DESCRIPTION | 1ST | 2ND |
|---|---|---|---|---|
| [2-1] | | | | |
| 2- 3 | 50583120 | Meter Escutcheon | | |
| 2- 9 | 50112642 | Amp Trim Panel | | |
| 2-56 | 50583130 | Clip Pin | | |
| [2-3] | | | | |
| 2-24 | 50442350 | Rotary Switch (Lever) | | |
| 2-60 | 50277770 | Rotary Switch Mount Plate | | |
| [2-2-1] | | | | |
| 2-22-1 | 50447120 | Lever Switch | | |
| 2-34-1 | 50279560 | Cushion Plate | | |
| 2-37-1 | 50414131 | 8V Pilot Lamp | | |
| 2-38-1 | 50415030 | Pilot Lamp Socket | | |
| 2-57-1 | 50234820 | Switch Mount Plate | | |
| [2-2-2] | | | | |
| 2-22-2 | 50447120 | Lever Switch | | |
| 2-37-2 | 50414131 | 8V Pilot Lamp | | |
| 2-38-2 | 50415030 | Pilot Lamp Socket | | |
| 2-58-2 | 50234840 | Meter Retainer | | |
| 2-59-2 | 50234820 | Switch Mount Plate | | |
| [2-4] | | | | |
| 2-54 | 50233730 | Amp Chassis | | |
| 2-55 | 50264620 | Connector Plate (DM)<br>Connector Plate (EX) | | |
| 2-61 | 50233530 | DIN Connector Holder | | |
| 2-62 | 50430010 | DIN Connector | | |
| 2-63 | 50454071 | Ground Terminal | | |
| [2-5] | | | | |
| 2-32 | 50241120 | Control Collar | | |
| 2-32 | 50277540 | Base Plate Holder | | |
| 2-33 | 50446090 | Micro Switch | | |

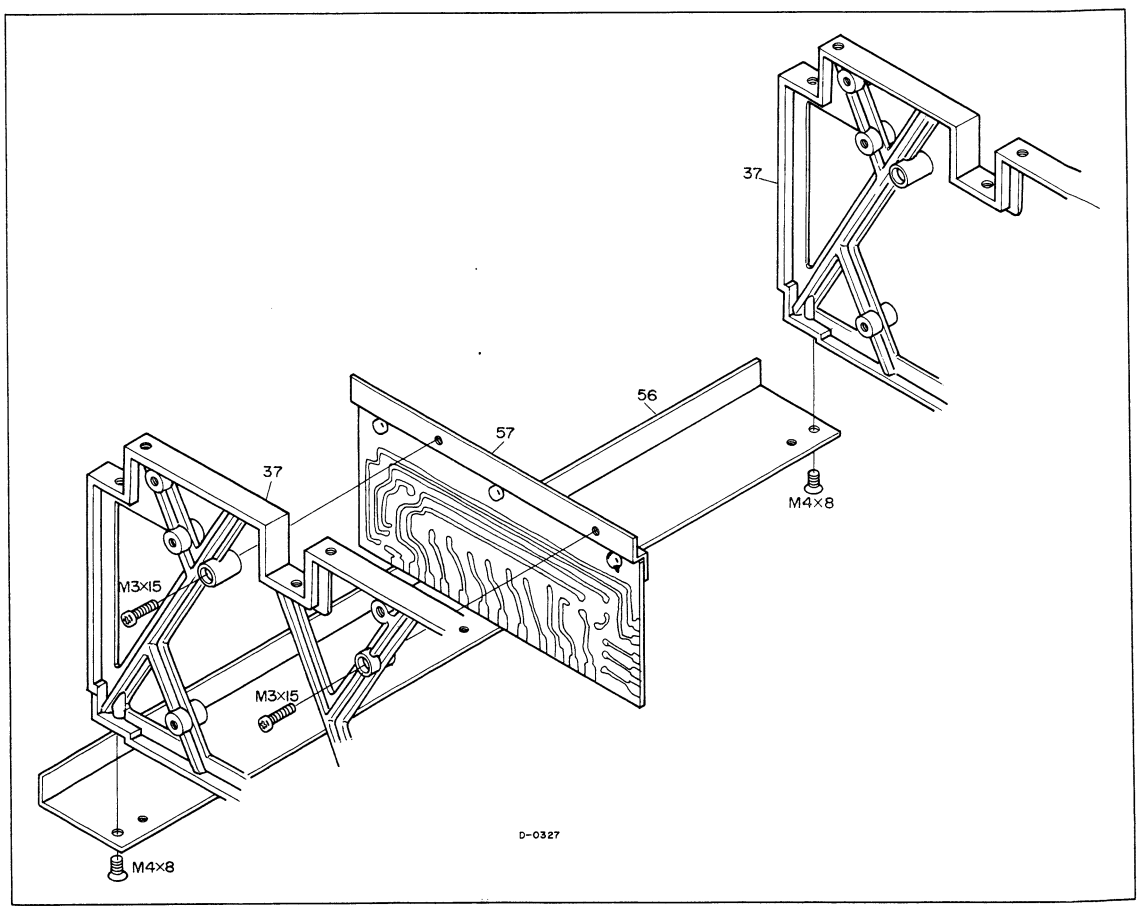
# ABOVE MAIN CHASSIS
## PARTIAL




3-1




3-2



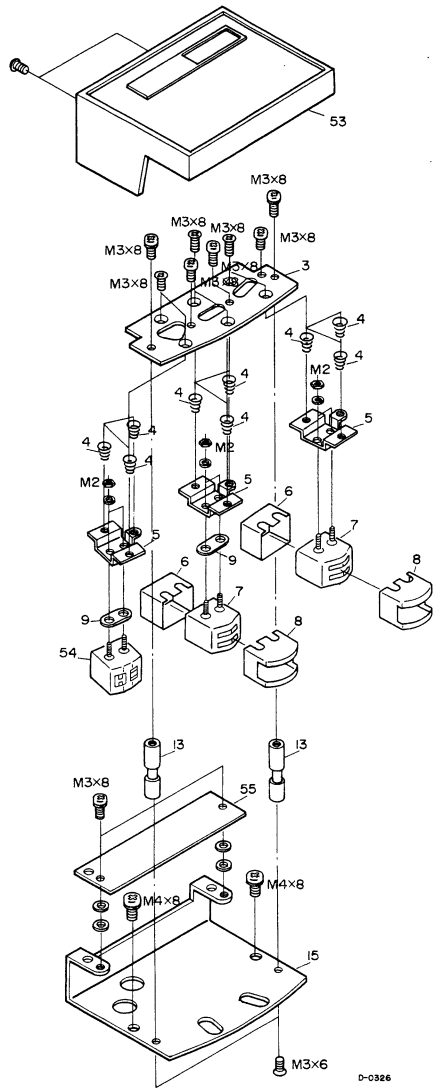

3-4

# ABOVE MAIN CHASSIS

## PARTIAL

| REF NO. | PARTS NO. | DESCRIPTION | 1ST | 2ND |
|---|---|---|---|---|
| [3-1] | | | | |
| 3-26 | 50134360 | Guide Cap | | |
| 3-49 | 50182780 | Guide C | | |
| 3-50 | 50182770 | Guide D | | |
| 3-51 | 50182821 | Tension Arm Assy (Left) | | |
| | 50183040 | Arm PC Board | | |
| 3-52 | 50182800 | Arm Holder (Left) | | |
| [3-2] | | | | |
| 3-30 | 50253102 | Knob C | | |
| 3-31-1 | 50263170 | Tape Speed Name Plate | | |
| [3-4] | | | | |
| 3-51 | 501129122 | Side Frame | | |
| 3-56 | 50277310 | Cover Angle Plate | | |
| 3-57 | 50482640 | Reverse PC Board | | |
| 3-57 | 50277250 | PC Board Angle Retainer | | |

# HEAD ASSEMBLY




3-3

| REF NO. | PARTS NO. | DESCRIPTION | 1ST | 2ND |
|---|---|---|---|---|
| 3- 3 | 50134400 | Head Angle Plate | | |
| 3- 4 | 50220500 | Spring | | |
| 3- 5-1 | 50134420 | E/R Head Mount Plate | | |
| 3- 6 | 50133900 | Shield Case (B) | | |
| 3- 7 | 50669041 | Playback Head | | |
| 3- 8 | 50133891 | Shield Case (A) | | |
| 3- 9 | 50134390 | REC Head Spacer | | |
| 3-13 | 50182672 | Guide Pin | | |
| 3-15 | 50134350 | Head Plate | | |
| 3-53 | 50135290 | Head Housing | | |
| 3-54 | 50663410 | E/R Head | | |
| 3-55 | 50482361 | PC Board (Head) | | |

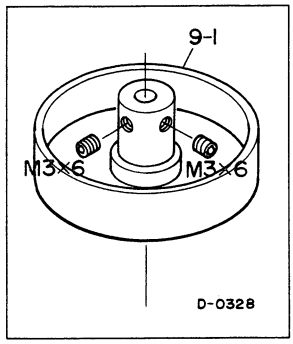
# HEAD CONFIGERATION

| | | | | | |
|---|---|---|---|---|---|
| APPLICABLE ON MODEL | T C A | A-1230<br>A-2100<br>A-2300 BLK | A-1250 | | |
| | DOMESTIC | A-2300<br>A-2300 BLK<br>A-2100 | A-2500<br>A-2500 BLK | A-2300 2T PORTABLE | A-2400 |
| | EXPORT | A-2100<br>A-2300 | A-2500 | A-2300 2T PORTABLE | A-2400 |
| | T E N V | A-2100<br>A-2300 | A-2500 | A-2300 2T WOODEN | |

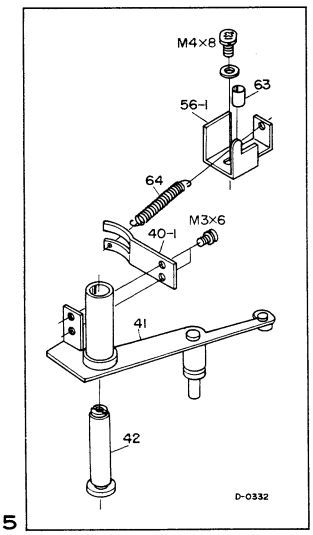
| REF. NO. | DESCRIPTION | PARTS NO. | QT. | PARTS NO. | QT. | PARTS NO. | QT. | PARTS NO. | QT. |
|---|---|---|---|---|---|---|---|---|---|
| | HEAD ASSY | 50130300 | 1 | 50130490 | 1 | 50130520 | 1 | 50130530 | 1 |
| 3-15 | HEAD PLATE | 50134350 | 1 | 50134350 | 1 | 50134350 | 1 | 50134530 | 1 |
| 3- 3 | HEAD ANGLE PLATE | 50134400 | 1 | 50134400 | 1 | 50134400 | 1 | 50134520 | 1 |
| 3-14 | PC BOARD | 50482352 | 1 | 50482361 | 1 | 50482352 | 1 | 50482420 | 1 |
| 3-13 | GUIDE PIN | 50182672 | 2 | 50182672 | 2 | 50182672 | 2 | 50182672 | 4 |
| | RELAY | | | 50610760 | 1 | | | | |
| | RESISTOR | | | 50515270 | 1 | | | | |
| | ELECTROLYTIC CAP 10u/150V | | | 50554350 | 1 | | | | |
| | HEAD MOUNTING PLATE | 50134370 | 3 | 50134370 | 2 | 50134370 | 3 | 50134370 | 1 |
| | E/R HEAD MOUNTING PLATE | | | 50134420 | 1 | | | | |
| 3-12 | ERASE HEAD | *(4TR-2CH)* 50663030 | 1 | | | *(2TR-2CH)* 50662030 | 1 | | |
| 3-10 | REC HEAD | *(4TR-2CH)* 50666040 | 1 | | | *(2TR-2CH)* 50665040 | 1 | | |
| | E/R HEAD | | | *(4TR-2CH)* 50663410 | 1 | | | | |
| 3- 7 | PLAY HEAD | *(4TR-2CH)* 50669040 | 1 | 50669040 | 2 | *(2TR-2CH)* 50668050 | 1 | *(4TR-4CH)* 50664310 | 1 |
| 3-11 | ERASE HEAD SPACER | 50134380 | 1 | | | 50134380 | 1 | | |
| 3- 9 | REC HEAD SPACER | 50134390 | 1 | 50134390 | 2 | 50134390 | 1 | 50134390 | 1 |
| 3- 8 | SHIELD CASE (A) | 50133891 | 1 | 50133891 | 2 | 50133891 | 1 | | |
| 3- 6 | SHIELD CASE (B) | 50133900 | 1 | 50133900 | 2 | 50133900 | 1 | | |
| 3- 4 | SPRING | 50220500 | 9 | 50220500 | 9 | 50220500 | 9 | 50220500 | 3 |

# BELOW MAIN CHASSIS (1)

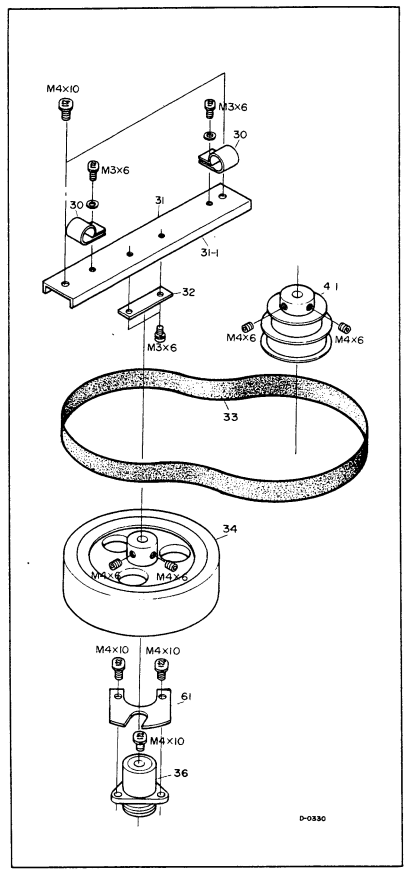
## PARTIAL



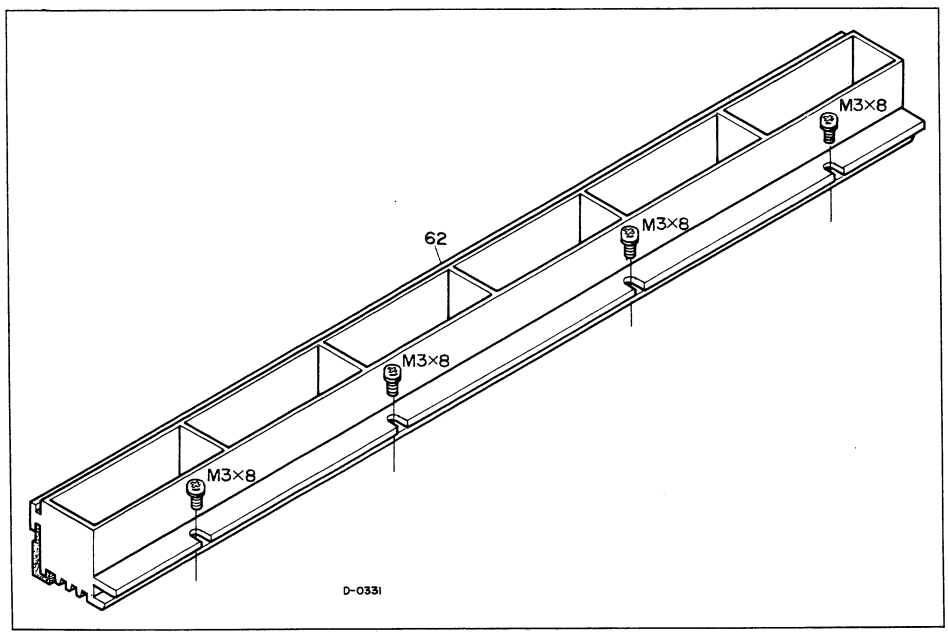

4-1




4-5




4-3




4-4

# BELOW MAIN CHASSIS (1)

## PARTIAL

| REF NO. | PARTS NO. | DESCRIPTION | 1ST | 2ND |
|---|---|---|---|---|
| [4-1] | | | | |
| 4-9-1 | 50172831 | Brake Drum | | |
| [4-3] | | | | |
| 4- 1 | 50124002 | Motor Pulley | | |
| 4-30 | 50276290 | Cord Pressure (Small) | | |
| 4-31-1 | 50277150 | Thrust Angle | | |
| 4-32 | 50277230 | Thrust Plate | | |
| 4-33 | 50123830 | Capstan Belt | | |
| 4-34 | 50123801 | Flywheel | | |
| 4-36 | 50120211 | Metallized Holder Assy | | |
| 4-61 | 50141830 | Holder Supporter | | |
| [4-4] | | | | |
| 4-62 | 50941280 | Top Grille | | |
| [4-5] | | | | |
| 4-40-1 | 50221151 | Pressure Spring | | |
| 4-41 | 50140233 | Pinch Roller Arm Assy | | |
| 4-42 | 50141770 | Roller Arm Shaft | | |
| 4-56-1 | 50141841 | Pinch Roller Stopper | | |
| 4-63 | 50275690 | Cushion Rubber | | |
| 4-64 | 50220441 | Return Spring | | |

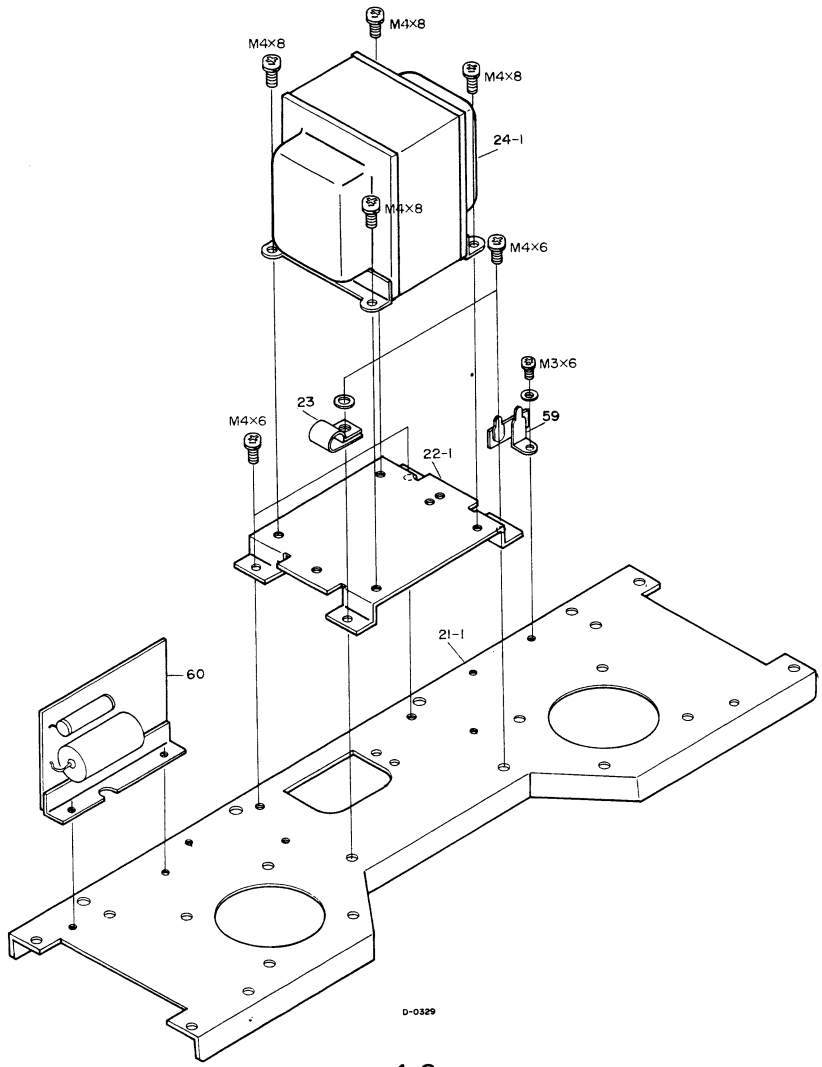
# BELOW MAIN CHASSIS (1)

## PARTIAL

| REF NO. | PARTS NO. | DESCRIPTION | 1ST | 2ND |
|---|---|---|---|---|
| [4-1] | | | | |
| 4-9-1 | 50172831 | Brake Drum | | |
| [4-3] | | | | |
| 4- 1 | 50124002 | Motor Pulley | | |
| 4-30 | 50276290 | Cord Pressure (Small) | | |
| 4-31-1 | 50277150 | Thrust Angle | | |
| 4-32 | 50277230 | Thrust Plate | | |
| 4-33 | 50123830 | Capstan Belt | | |
| 4-34 | 50123801 | Flywheel | | |
| 4-36 | 50120211 | Metallized Holder Assy | | |
| 4-61 | 50141830 | Holder Supporter | | |
| [4-4] | | | | |
| 4-62 | 50941280 | Top Grille | | |
| [4-5] | | | | |
| 4-40-1 | 50221151 | Pressure Spring | | |
| 4-41 | 50140233 | Pinch Roller Arm Assy | | |
| 4-42 | 50141770 | Roller Arm Shaft | | |
| 4-56-1 | 50141841 | Pinch Roller Stopper | | |
| 4-63 | 50275690 | Cushion Rubber | | |
| 4-64 | 50220441 | Return Spring | | |

# BELOW MAIN CHASSIS (2)

## PARTIAL




4-2

| REF NO. | PARTS NO. | DESCRIPTION | 1ST | 2ND |
|---|---|---|---|---|
| [4-2] | | | | |
| 4-21-1 | | Motor Chassis | | |
| 4-22-1 | 50233751 | Xformer Mount Plate | | |
| 4-23 | 50276280 | Cord Pressure (Large) | | |
| 4-24-1 | 50561710 | Power Supply Xformer | | |
| 4-59 | | Terminal 1L1P | | |
| 4-60 | 50482400 | PC Board | | |
| 4-60 | 50233930 | PC Board Mount Angle (B) | | |

# 16 MANUAL CHANGES

**REVISIONS**

Change notices, recommended modifications etc. will be issued for the models in this manual, when appropriate.
This sheet is in loose leaf form and should be filed behind this page for convenient reference.